

Service Service Service



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Service Manual

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1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

- 1.1 Technical Specifications
- 1.2 Connection Overview
- 1.3 Chassis Overview

- Tuner bands : VHF
- : UHF
- : S-band
- : Hyper-band

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

1.1.2 Sound

- Sound systems : NICAM B/G, D/K, I, L
- : AV Stereo

1.1 Technical Specifications

1.1.1 Vision

- Display type : LCD, IPS
- Screen size :
 - 26PF5321/10/12 : 26" (66 cm), 16:9
 - 32PF5321/10/12 : 32" (82 cm), 16:9
 - 37PF5321/10/12 : 37" (94 cm), 16:9
 - 26PF7321/12 : 26" (66 cm), 16:9
 - 32PF7321/12 : 32" (82 cm), 16:9
 - 37PF7321/10/12 : 37" (94 cm), 16:9
- Resolution (HxV pixels) : 1366 x 768
- Contrast ratio :
 - 26PF5321/10/12 : 1200:1
 - 32PF5321/10/12 : 1200:1
 - 37PF5321/10/12 : 1200:1
 - 26PF7321/12 : 2400:1
 - 32PF7321/12 : 2400:1
 - 37PF7321/10/12 : 2400:1
- Light output (cd/m²) : 500
- Response time (ms) : 8
- Viewing angle (HxV degrees) :
 - 26PF5321/10/12 : 178x178
 - 32PF5321/10/12 : 178x178
 - 37PF5321/10/12 : 176x176
 - 26PF7321/12 : 178x178
 - 32PF7321/12 : 178x178
 - 37PF7321/10/12 : 176x176
- Tuning system : PLL
- TV Colour systems : PAL B/G, D/K, I
: SECAM B/G, D/K, L/L'
- Video playback : NTSC M/N 3.58, 4.43
: PAL B/G
: SECAM L/L'
- Supported computer formats : VGA (640x480)
: MAC (640x480)
: SVGA (800x600)
: XVGA (1024x768)
: WXGA (1280x768)
- Supported video formats : 640x480p - 2fH
: 720x576p - 2fH
: 1280x720p - 3fH
: 1920x1080i - 2fH
- Presets/channels : 100 presets

- Maximum power (W_{RMS}) :
 - 26PF5321/10/12 : 2 x 5
 - 32PF5321/10/12 : 2 x 15
 - 37PF5321/10/12 : 2 x 15
 - 26PF7321/12 : 2 x 5
 - 32PF7321/12 : 2 x 15
 - 37PF7321/10/12 : 2 x 15

1.1.3 Miscellaneous

- Power supply:
- Mains voltage (V_{AC}) :
 - 26PF5321/10/12 : 110 - 240
 - 32PF5321/10/12 : 110 - 240
 - 37PF5321/10/12 : 220 - 240
 - 26PF7321/12 : 110 - 240
 - 32PF7321/12 : 110 - 240
 - 37PF7321/10/12 : 220 - 240

- Mains frequency (Hz) : 50 / 60

- Ambient conditions:
- Temperature range (°C) : +5 to +40
- Maximum humidity : 90% R.H.

- Power consumption:
- Normal operation (W) :
 - 26PF5321/10/12 : 100
 - 32PF5321/10/12 : 120
 - 37PF5321/10/12 : 180
 - 26PF7321/12 : 100
 - 32PF7321/12 : 120
 - 37PF7321/10/12 : 180
- Stand-by (W) :
 - 26PF5321/10/12 : < 1
 - 32PF5321/10/12 : < 1
 - 37PF5321/10/12 : < 2
 - 26PF7321/12 : < 1
 - 32PF7321/12 : < 1
 - 37PF7321/10/12 : < 2

- Dimensions (WxHxD cm):
 - 26PF5321/10/12 : 80.45 x 43.8 x 11.4
 - 32PF5321/10/12 : 92.4 x 50.7 x 11.9
 - 37PF5321/10/12 : 110.0 x 60.9 x 10.25
 - 26PF7321/12 : 69.75 x 49.48 x 9.97
 - 32PF7321/12 : 93.5 x 51.65 x 12.0
 - 37PF7321/10/12 : 111.4 x 61.8 x 10.3

- Weight (kg):
 - 26PF5321/10/12 : 13.3
 - 32PF5321/10/12 : 18.9
 - 37PF5321/10/12 : 25.1
 - 26PF7321/12 : 13.0
 - 32PF7321/12 : 19.2
 - 37PF7321/10/12 : 25.9

1.2 Connection Overview

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Side I/O connections

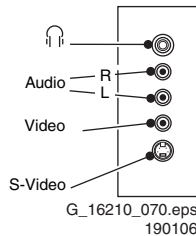


Figure 1-1 Side I/O connections

S-Video (Hosiden): Video Y/C - In

1 - Ground Y	Gnd	
2 - Ground C	Gnd	
3 - Video Y	1 V _{PP} / 75 ohm	
4 - Video C	0.3 V _{PP} / 75 ohm	

Cinch: Video CVBS - In, Audio - In

Ye - Video CVBS	1 V _{PP} / 75 ohm	
Wh - Audio L	0.5 V _{RMS} / 10 kohm	
Rd - Audio R	0.5 V _{RMS} / 10 kohm	

Mini Jack: Audio Head phone - Out

Bk - Head phone	32 - 600 ohm / 10 mW	
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1.2.2 Rear Connections

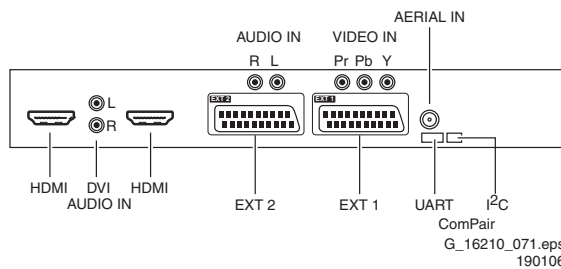


Figure 1-2 Rear I/O

Aerial - In

- IEC-type (EU)	Coax, 75 ohm	
-----------------	--------------	--

Cinch: Audio - In

Wh - Audio L	0.5 V _{RMS} / 10 kohm	
Rd - Audio R	0.5 V _{RMS} / 10 kohm	

Cinch: Video YPbPr - In

Gn - Video Y	1 V _{PP} / 75 ohm	
Bu - Video Pb	0.7 V _{PP} / 75 ohm	
Rd - Video Pr	0.7 V _{PP} / 75 ohm	

Cinch: DVI Audio - In

Rd - Audio - R	0.5 V _{RMS} / 10 kohm	
Wh - Audio - L	0.5 V _{RMS} / 10 kohm	

Service connector (ComPair)

1 - SDA-S	I ² C Data (0 - 5 V)	
2 - SCL-S	I ² C Clock (0 - 5 V)	
3 - Ground	Gnd	

Service connector (UART)

1 - UART_TX	Transmit	
2 - Ground	Gnd	
3 - UART_RX	Receive	

HDMI: Digital Video/Digital Audio - In

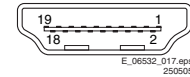


Figure 1-3 HDMI (type A) connector

1 - D2+	Data channel	
2 - Shield	Gnd	
3 - D2-	Data channel	
4 - D1+	Data channel	
5 - Shield	Gnd	
6 - D1-	Data channel	
7 - D0+	Data channel	
8 - Shield	Gnd	
9 - D0-	Data channel	
10 - CLK+	Data channel	
11 - Shield	Gnd	
12 - CLK-	Data channel	
13 - n.c.		
14 - n.c.		
15 - DDC_SCL	DDC clock	
16 - DDC_SDA	DDC data	
17 - Ground	Gnd	
18 - +5V		
19 - HPD	Hot Plug Detect	
20 - Ground	Gnd	

EXT1: Video RGB - In, CVBS - In/Out, Audio - In/Out

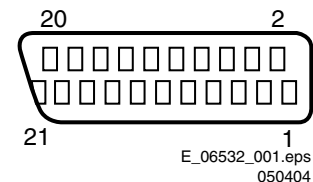
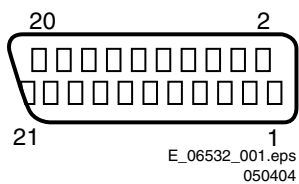


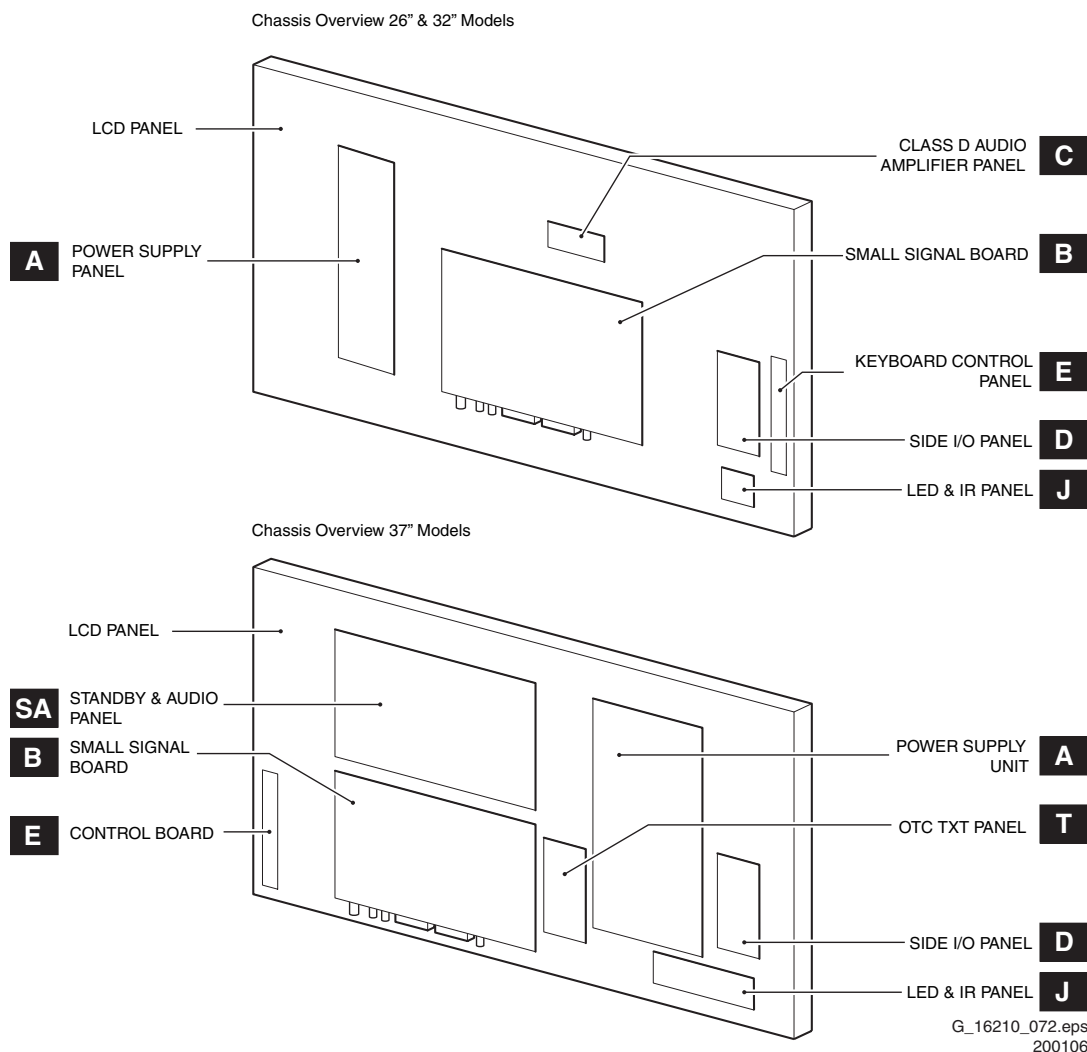
Figure 1-4 SCART connector

1 - Audio R	0.5 V _{RMS} / 1 kohm	
2 - Audio R	0.5 V _{RMS} / 10 kohm	
3 - Audio L	0.5 V _{RMS} / 1 kohm	
4 - Ground Audio	Gnd	
5 - Ground Blue	Gnd	
6 - Audio L	0.5 V _{RMS} / 10 kohm	
7 - Video Blue	0.7 V _{PP} / 75 ohm	
8 - Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9 - Ground Green	Gnd	
10 - n.c.		
11 - Video Green	0.7 V _{PP} / 75 ohm	
12 - n.c.		
13 - Ground Red	Gnd	
14 - Ground	Gnd	
15 - Video Red	0.7 V _{PP} / 75 ohm	
16 - Status/FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	
17 - Ground Video	Gnd	
18 - Ground FBL	Gnd	
19 - Video Terr. CVBS	1 V _{PP} / 75 ohm	
20 - Video CVBS/Y	1 V _{PP} / 75 ohm	
21 - Shield	Gnd	

EXT2: Video Y/C - in, CVBS - In/Out, Audio - In/Out**Figure 1-5 SCART connector**

1	- Audio R	0.5 V _{RMS} / 1 kohm	⊕
2	- Audio R	0.5 V _{RMS} / 10 kohm	⊕
3	- Audio L	0.5 V _{RMS} / 1 kohm	⊕
4	- Ground Audio	Gnd	⊕
5	- Ground Blue	Gnd	⊕
6	- Audio L	0.5 V _{RMS} / 10 kohm	⊕

7	- n.c.		
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3 Gnd	⊕
9	- Ground Green	Gnd	⊕
10	- n.c.		
11	- n.c.		
12	- n.c.		
13	- Ground Red	Gnd	⊕
14	- Ground	Gnd	⊕
15	- YC/C - in	0.7 V _{PP} / 75 ohm	⊕
16	- n.c.		
17	- Ground Video	Gnd	⊕
18	- Ground	Gnd	⊕
19	- Video Mon. CVBS	1 V _{PP} / 75 ohm	⊕
20	- YC/Y - in	0.7 V _{PP} / 75 ohm	⊕
21	- Shield	Gnd	⊕

1.3 Chassis Overview**Figure 1-6 Chassis overview**

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Warnings
- 2.3 Notes

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains (AC Power) via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol , only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains (AC Power) lead for external damage.
- Check the strain relief of the Mains (AC Power) cord for proper function.
- Check the electrical DC resistance between the Mains (AC Power) plug and the secondary side (only for sets that have a Mains (AC Power) isolated power supply):
 1. Unplug the Mains (AC Power) cord and connect a wire between the two pins of the Mains (AC Power) plug.
 2. Set the Mains (AC Power) switch to the "on" position (keep the Mains (AC Power) cord unplugged!).
 3. Measure the resistance value between the pins of the Mains (AC Power) plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
 4. Switch "off" the set, and remove the wire between the two pins of the Mains (AC Power) plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ) . Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
 - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
 - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground () , or hot ground () , depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with () and without () aerial signal. Measure the voltages in the power supply section both in normal operation () and in stand-by () . These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads ($\mu = \times 10^{-6}$), nano-farads ($n = \times 10^{-9}$), or pico-farads ($p = \times 10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the PWB. To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.

Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.

After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.

Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information

For more information on how to handle BGA devices, visit this URL: www.atyourservice.ce.philips.com (needs subscription, not available for all regions). After login, select "Magazine", then go to "Repair downloads". Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).



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Figure 2-1 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.

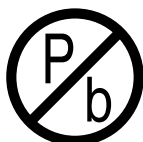


Figure 2-2 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within

workshops should be avoided because paste is not easy to store and to handle.

- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
 - To reach a solder-tip temperature of at least 400°C.
 - To stabilise the adjusted temperature at the solder-tip.
 - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to **avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid the mixing of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature profile, which is coupled to the 12NC. For an overview of these profiles, visit the website www.atyourservice.ce.philips.com (needs subscription, but is not available for all regions). You will find this and more technical information within the "Magazine", chapter "Repair downloads".

For additional questions please contact your local repair help desk.

2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:

<http://www.philips.com/support>

<http://www.p4c.philips.com>

4. Mechanical Instructions

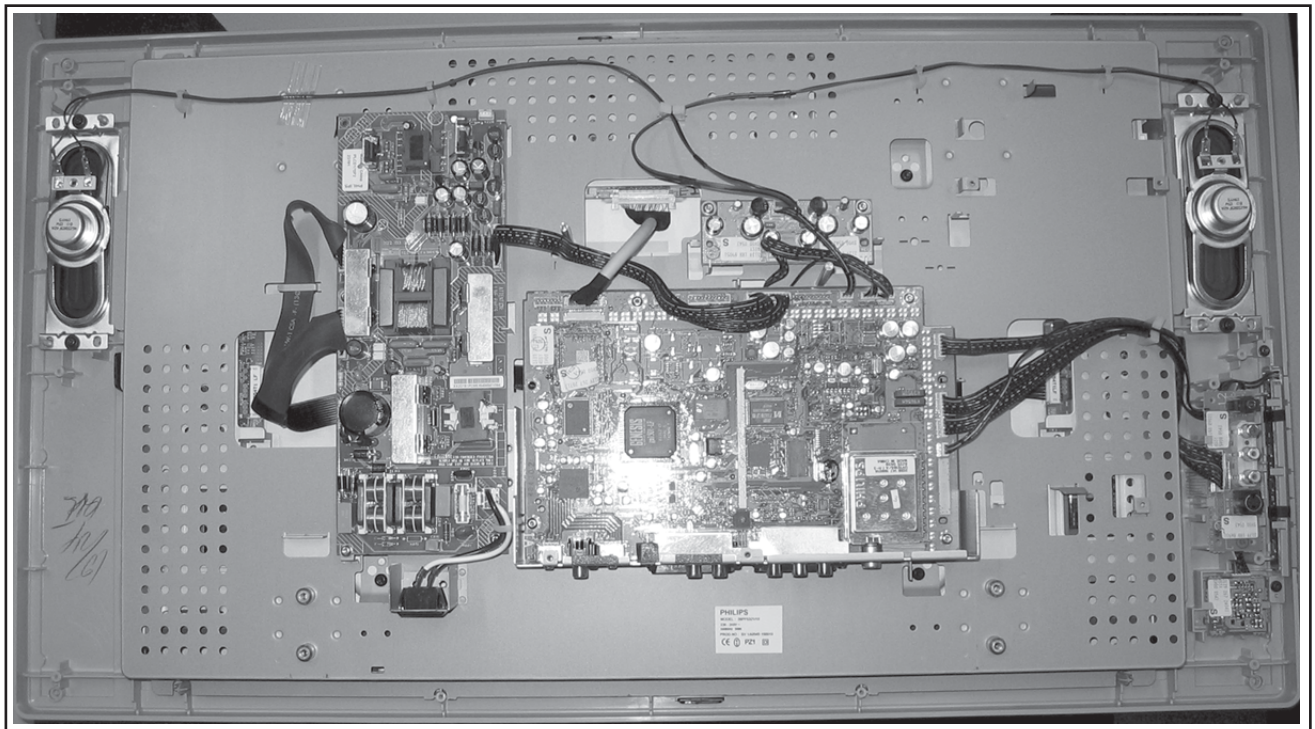
Index of this chapter:

- 4.1 Cable Dressing
- 4.2 Service Position
- 4.3 Assy/Panel Removal
- 4.4 Set Re-assembly

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassembling instructions in described order.

4.1 Cable Dressing



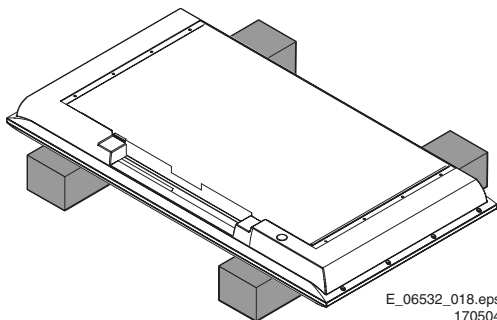
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Figure 4-1 Cable dressing (26PF5321/10)

4.2 Service Position

First, put the TV set in its service position. Therefore, place it upside down on a table top (use a protection sheet or foam bars).

4.2.1 The Foam Bars



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170504

Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580) can be used for all types and sizes of Flat TVs. By laying the plasma or LCD TV flat on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By first

placing a mirror flat on the table under the TV you can easily see if something is happening on the screen.

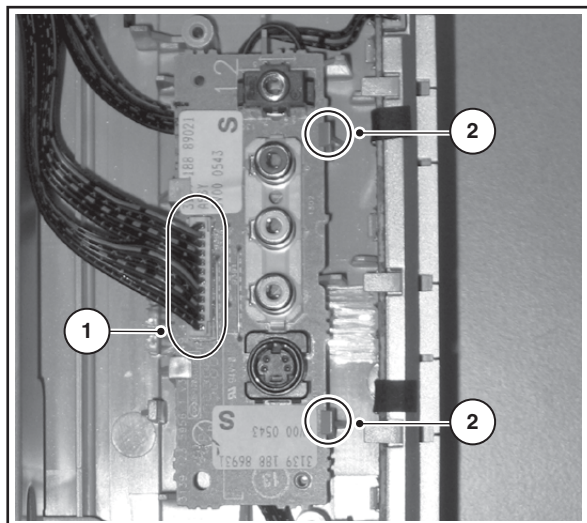
4.3 Assy/Panel Removal

4.3.1 Rear Cover

Warning: Disconnect the mains power cord before you remove the rear cover.

1. Remove the screws that secure the rear cover.
2. Lift the rear cover from the cabinet cautiously. Make sure that wires and other internal components are not damaged during cover removal.

4.3.2 Side I/O Panel

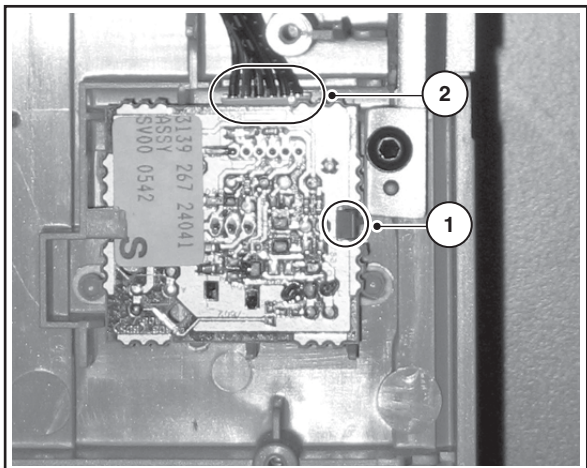


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Figure 4-3 Side I/O panel

1. Disconnect the cable [1] from the panel.
2. Release the two fixation clamps [2] and lift the panel out of the bracket.

4.3.3 LED Panel

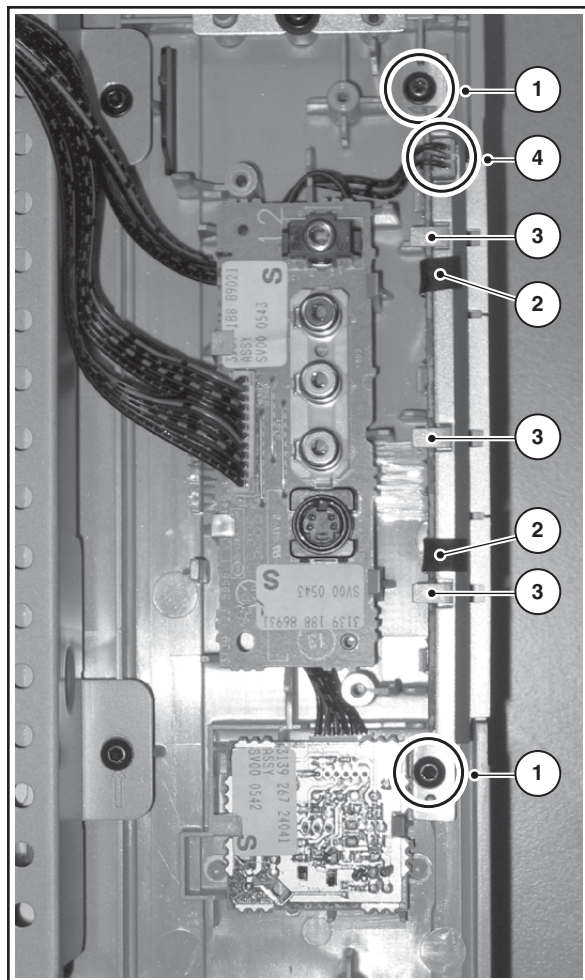


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Figure 4-4 LED panel

1. Release the fixation clamp [1] and take the panel out of the bracket.
2. Disconnect the cable [2] from the panel.

4.3.4 Keyboard Control Panel

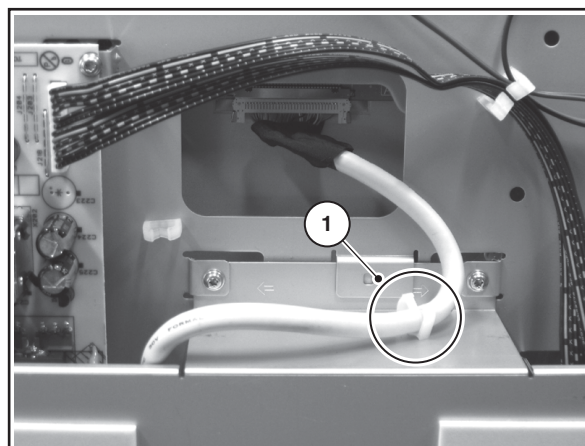


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Figure 4-5 Keyboard control panel

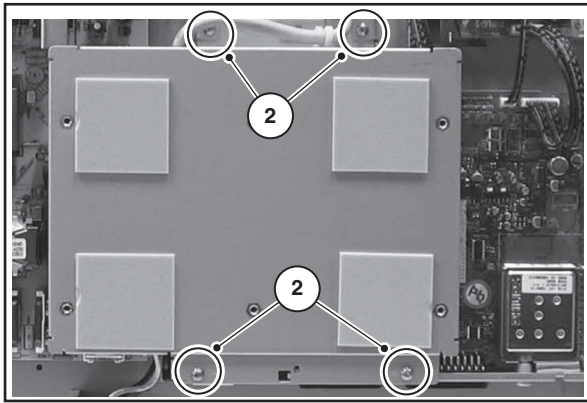
1. Remove the two fixation screws [1] from the bracket and take out the panel/bracket combination.
2. Remove the fixation tape [2] from the panel/bracket combination.
3. Release the three fixation clamps [3] and lift the panel out of the bracket.
4. Disconnect the cable [4] from the panel.

4.3.5 SSB Cover Shield (depending on model)



F_15270_044.eps
180505

Figure 4-6 Cable clip on cover shield



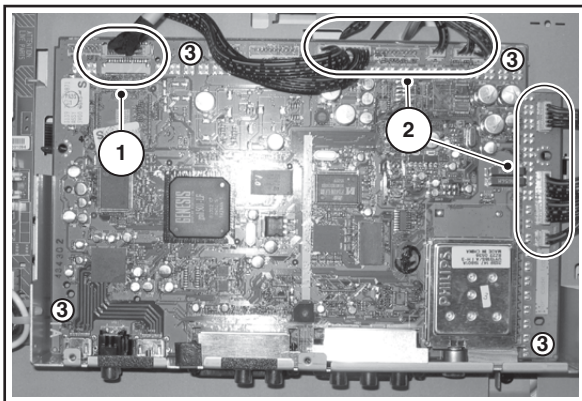
F_15270_045.eps
190505

Figure 4-7 SSB cover shield

1. Release the cable from the plastic cable clip [1] on the shield (see Figure "Cable clip on cover shield" above).
2. Remove the four fixation screws (2, see Figure "SSB cover shield"; the screws are also indicated by arrows on the shield) and remove the shield.

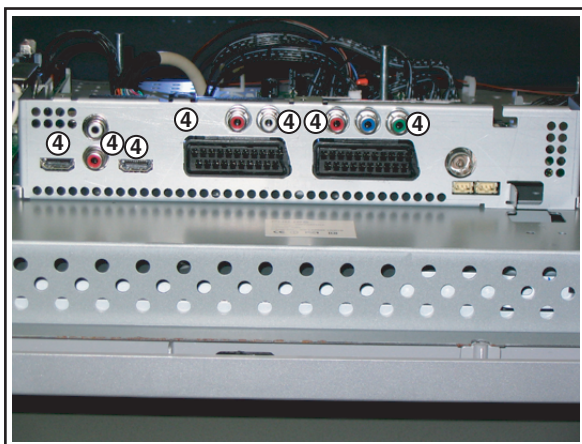
Notice that on one side, the shield is not only held by two screws, but also by two brackets (see Figure "Cable clip on cover shield" above).

4.3.6 Small Signal Board



G_16210_077.eps
190106

Figure 4-8 SSB connectors

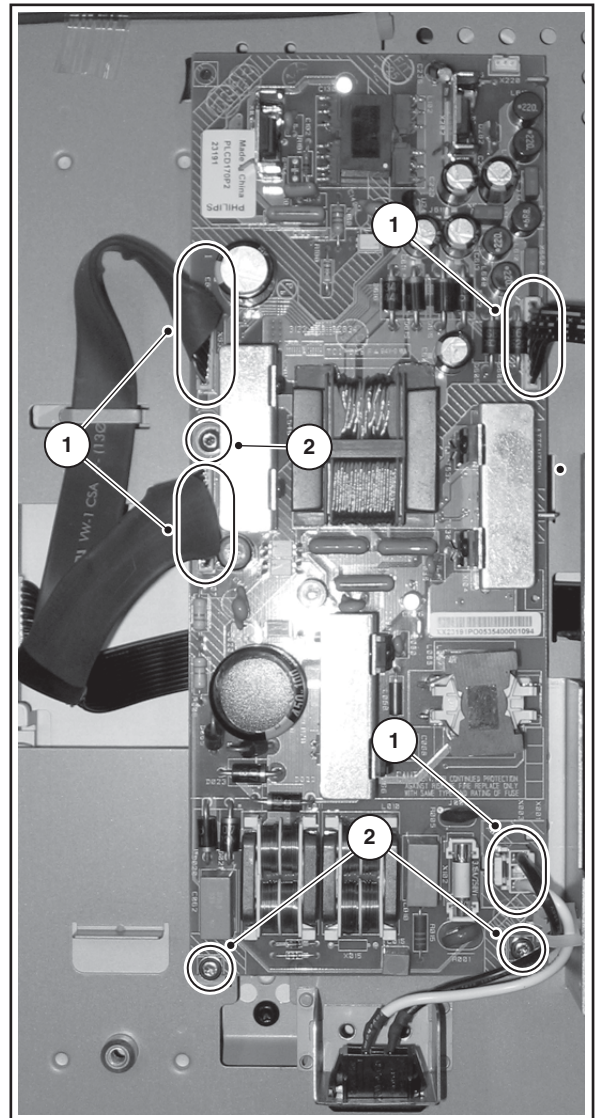


G_16210_078.eps
200106

Figure 4-9 Connector screws

1. Very **cautiously** disconnect the LVDS cable [1] from the panel (see Figure "SSB connectors"). Notice that this cable is very fragile.
2. Disconnect the other cables [2] from the panel.
3. Remove the fixation screws [3] that secure the SSB (depending on model) and also the fixation screws [4] from the connector plate (see Figure "Connector screws").
4. Take the panel out of its brackets.

4.3.7 Power Supply Panel (various models used)

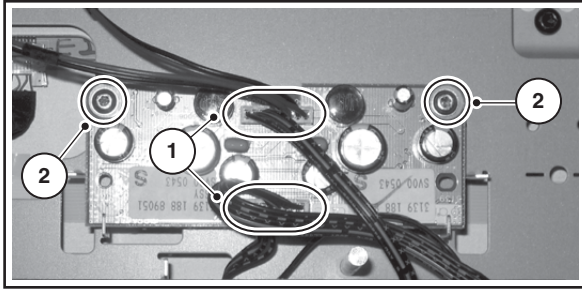


G_16210_079.eps
200106

Figure 4-10 Power supply panel

1. Disconnect all cables [1] from the panel.
Notice that the two connectors for X520 and X530 on this panel are similar, and should not be mixed up later when they are reconnected (X520 is connected via its flatcable to connector CN01 on the LCD panel, near the R-speaker; X530 is connected via its flatcable to connector CN04 on the LCD panel, near the L-speaker).
2. Remove the fixation screws [2] from the panel.
3. Take the panel out of its brackets.

4.3.8 Audio Amplifier Panel

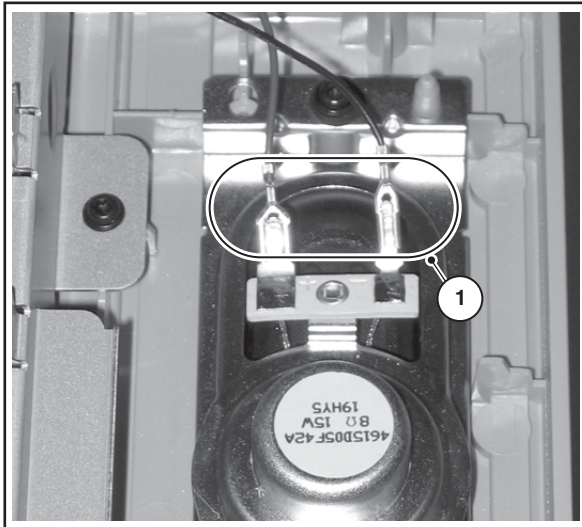


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200106

Figure 4-11 Audio amplifier panel

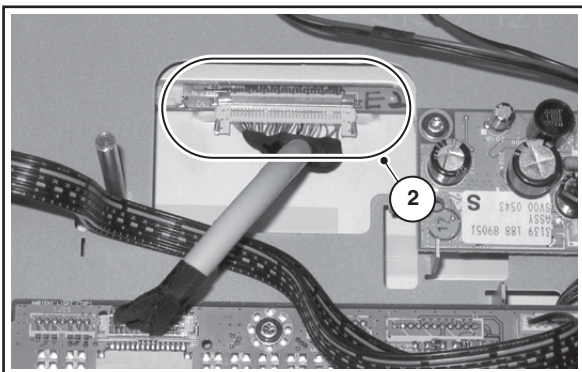
1. Disconnect all cables [1] from the panel.
2. Remove the fixation screws [2] from the panel.
3. Remove the panel.

4.3.9 LCD Panel



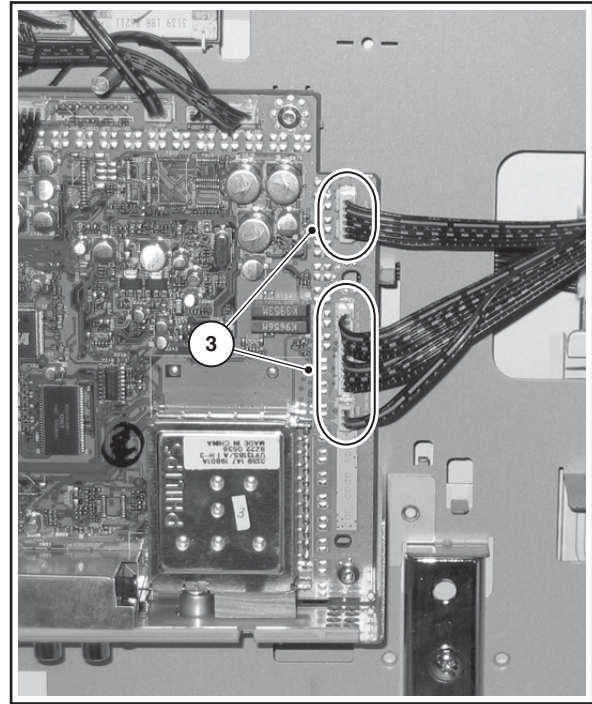
G_16210_081.eps
200106

Figure 4-12 Loudspeaker cables



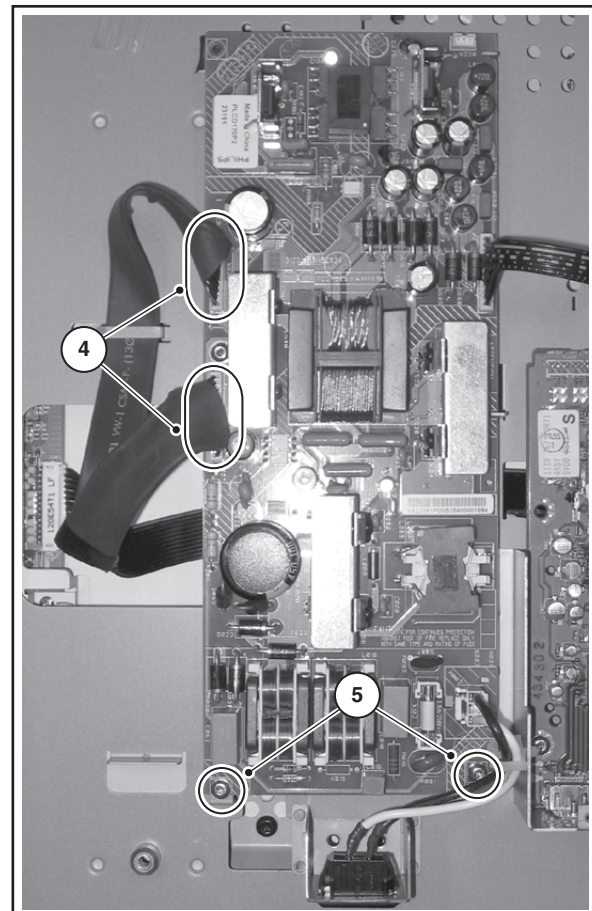
G_16210_082.eps
200106

Figure 4-13 LVDS connector



G_16210_083.eps
200106

Figure 4-14 SSB connectors for side I/O, side control panel, and LED



G_16210_084.eps
200106

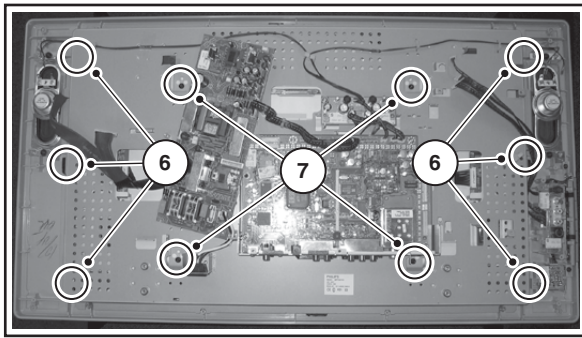
Figure 4-15 Connectors X520 and X530 and fixation screws on power supply panel

4.4 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

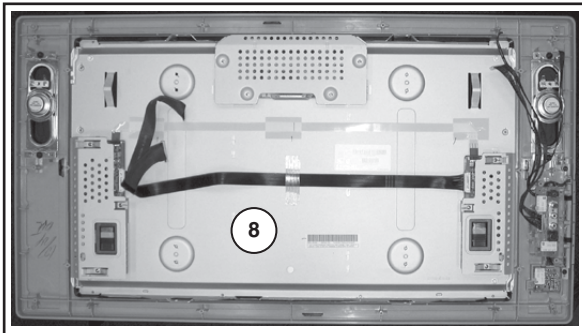
Notes:

- While re-assembling, make sure that all cables are placed and connected in their original positions. See Figure "Cable dressing".
Be careful with the fragile LVDS cable.



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200106

Figure 4-16 Shield screws of the LCD panel



G_16210_086.eps
200106

Figure 4-17 LCD panel

To remove the LCD-panel, carry out the following steps:

1. Disconnect the cables [1] from the "L" and the "R" loudspeakers (see Figure "Loudspeaker cables").
2. **Important:** Unplug the LVDS connector [2] on the LCD panel (see Figure "LVDS connector"), or better: remove the cable completely.
Be careful, as this is a very fragile connector/cable!
3. Unplug the connectors [3] of the Side I/O panel, the Top Control panel, and the LED panel on the SSB (see Figure "SSB connectors for side I/O, side control panel, and LED").
4. Unplug the connectors X520 and X530 [4] on the Power Supply board (see Figure "Connectors X520 and X530 and fixation screws on power supply panel").
5. Loosen the fixation screws [5] from the power supply board, and put the power supply board a bit aside.
6. Loosen screws [6] and [7] (see Figure "Shield screws of the LCD panel").
7. Lift the metal frame (together with all PWBs) from the LCD panel.
Take care not to damage the fragile LVDS cable.
8. After removal of the metal frame, you can lift the LCD display [8] from its plastic frame (see Figure "LCD panel").
9. If the plastic frame is damaged, replace it by a new frame, after removing the loudspeakers, the Side I/O panel, the Side Control panel, and the LED panel.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

- 5.1 Test Points
- 5.2 Service Modes
- 5.3 Problems and Solving Tips Related to CSM
- 5.4 Service Tools
- 5.5 Error Codes
- 5.6 The Blinking LED Procedure
- 5.7 Fault Finding and Repair Tips

5.1 Test Points

This chassis is equipped with test points. In the schematics, test points are indicated with a rectangle box around Fxxx or lxxx, in the layouts with a half-moon.

Perform measurements under the following conditions:

- Television set in Service Default Mode.
- Video input: Colour bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the possibilities of structured troubleshooting, error code reading, and software version read-out for all chassis.

Minimum requirements for ComPair: a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

5.2.1 Service Default Mode (SDM)

Purpose

- To create a predefined setting for measurements to be made.
- To override software protections.
- To start the blinking LED procedure.
- To inspect the error buffer.
- To check the life timer.

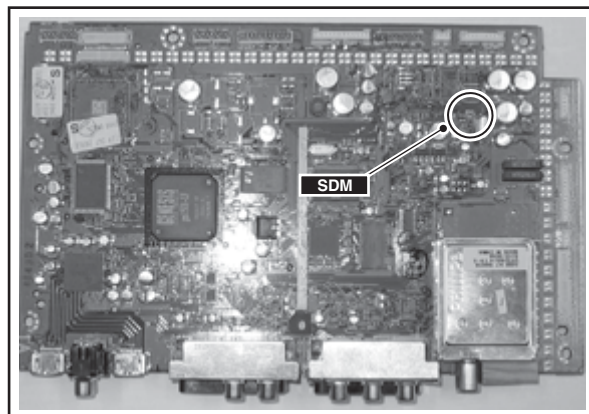
Specifications

- Tuning frequency: 475.25 MHz.
- Colour system: PAL-BG.
- All picture settings at 50% (brightness, colour contrast, hue).
- Bass, treble, and balance at 50 %; volume at 25 %.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
 - Timer / Sleep timer.
 - Child / parental lock.
 - Blue mute.
 - Hotel / hospital mode.
 - Auto shut off (when no "IDENT" video signal is received for 15 minutes).
 - Skipping of non-favourite presets / channels.
 - Auto-storage of personal presets.
 - Auto user menu time-out.
 - Auto Volume Levelling (AVL).

How to Enter

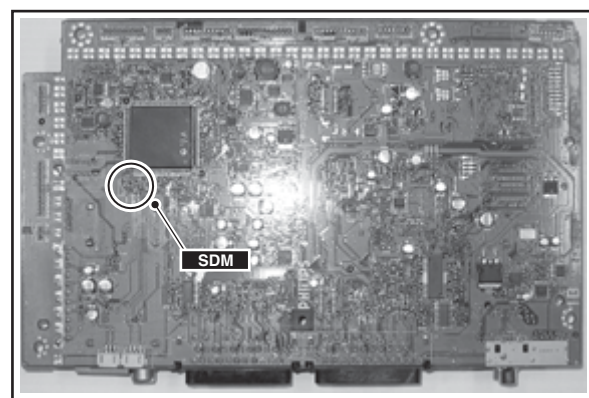
To enter SDM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: "062596" directly followed by the MENU button (do not allow the display to time out between entries while keying the sequence).
 - Short one of the "Service" jumpers on the TV board during cold start and apply mains (see Figures "Service jumper"). Then press the mains button (remove the short after start-up).
- Caution:** Entering SDM by shorting "Service" jumpers will override the +8V-protection. Do this only for a short period. When doing this, the service-technician must know exactly what he is doing, as it could damage the television set.
- Or via ComPair.



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200106

Figure 5-1 Service jumper (component side)



G_16210_088.eps
200106

Figure 5-2 Service jumper (solder side)

After entering SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Mode.

```
00035 HSD21E1 1.00/S21LXN 1.00 SDM
ERR 0 0 0 0 0
OP 152 167 015 081 252 127 019
```

G_16210_089.eps
200106

Figure 5-3 SDM menu

How to Navigate

Use one of the following methods:

- When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.
- On the TV, press and hold the VOLUME DOWN and press the CHANNEL DOWN for a few seconds, to switch from SDM to SAM and reverse; or press the following key sequence on the remote control transmitter: "062596" directly followed by the OSD button to switch to SAM (do not allow the display to time out between entries while keying the sequence).

How to Exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.

If you turn the television set off by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

Specifications

- Operation hours counter (maximum five digits displayed).
- Software version, Error codes, and Option settings display.
- Error buffer clearing.
- Option settings.
- Software alignments (Tuner, White Tone, Geometry & Audio).
- NVM Editor.
- ComPair Mode switching.

How to Enter

To enter SAM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: "062596" directly followed by the OSD/STATUS/INFO(I+) button (do not allow the display to time out between entries while keying the sequence).
- Or via ComPair.

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.

```
00035 HSD21E1 1.00/S21LXN 1.00 SAM
ERR 0 0 0 0 0

OP 152 167 015 081 252 127 019

. Clear                      Clear ? ►
. Options                    ►
. Tuner                     ►
. White Tone                 ►
. Audio                      ►
. NVM Editor                 ►
. SC NVM Editor              ►
. ComPair Mode              ► On
```

G_16210_090.eps
200106

Figure 5-4 SAM menu

Menu Explanation

1. **LLLLL**. This represents the run timer. The run timer counts normal operation hours, but does not count standby hours.
2. **AAABCD X.YY**. This is the software identification of the main microprocessor:
 - **A**= the project name (LC04.x).
 - **B**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM.
 - **C**= the software diversity:
 - **Europe**: T= 1 page TXT, F= Full TXT, V= Voice control.
 - **LATAM and NAFTA**: N= Stereo non-dBx, S= Stereo dBx.
 - **Asian Pacific**: T= TXT, N= non-TXT, C= NTSC.
 - **ALL regions**: M= mono, D= DVD, Q= Mk2.
 - **D**= the language cluster number.
 - **X**= the main software version number (updated with a major change that is incompatible with previous versions).
 - **Y**= the sub software version number (updated with a minor change that is compatible with previous versions).
3. **EEEE F.GG**. This is the software identification of the Scaler:
 - **EEEE**= the scaler sw cluster
 - **F**= the main sw version no.
 - **GG**= the sub-version no.
4. **SAM**. Indication of the Service Alignment Mode.
5. **Error Buffer**. Shows all errors detected since the last time the buffer was erased. Five errors possible.
6. **Option Bytes**. Used to read-out the option bytes. See "Options" in the Alignments section for a detailed description. Seven codes are possible.
7. **Clear**. Erases the contents of the error buffer. Select the CLEAR menu item and press the MENU RIGHT key. The content of the error buffer is cleared.
8. **Options**. Used to set the option bits. See "Options" in the Alignments section for a detailed description.
9. **Tuner**. Used to align the tuner. See "Tuner" in the Alignments section for a detailed description.
10. **White Tone**. Used to align the white tone. See "White Tone" in the Alignments section for a detailed description.
11. **Audio**. No audio alignment is necessary for this television set.
12. **NVM Editor**. Can be used to change the NVM data in the television set. See table "NVM data" further on.

13. **SC NVM Editor.** Can be used to edit Scaler NVM.
14. **ComPair.** Can be used to switch on the television to In System Programming (ISP) mode, for software uploading via ComPair.
Caution: When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.

How to Navigate

- In SAM, select menu items with the MENU UP/DOWN keys on the remote control transmitter. The selected item will be indicated. When not all menu items fit on the screen, use the MENU UP/DOWN keys to display the next / previous menu items.
- With the MENU LEFT/RIGHT keys, it is possible to:
 - Activate the selected menu item.
 - Change the value of the selected menu item.
 - Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU button.
- When you press the MENU key in while in a submenu, you will return to the previous menu.
- On the TV, press and hold the VOLUME DOWN and press the CHANNEL DOWN for a few seconds, to switch from SAM to SDM and reverse; or press the following key sequence on the remote control transmitter: "062596" directly followed by the MENU button to switch to SDM (do not allow the display to time out between entries while keying the sequence).

How to Store SAM Settings

To store the settings changed in SAM mode, leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

How to Exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set "off" by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SAM when mains is re-applied, and the error buffer is not cleared.

5.2.3 Customer Service Mode (CSM)

Purpose

The Customer Service Mode shows error codes and information on the TV's operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.

The CSM is a read-only mode; therefore, modifications are not possible in this mode.

How to Enter

To enter CSM, press the following key sequence on the remote control transmitter: "123654" (do not allow the display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:

```

1 00035 HSD21E1 1.00/S21LXN 1.00 CSM
2 CODES 0 0 0 0 0
3 OP 152 167 015 081 252 127 019
4 26PF5321/10
5 AAAAAA/B.CC
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
  
```

G_16210_091.eps
200106

Figure 5-5 CSM menu

Menu Explanation

1. Indication of the decimal value of the operation hours counter, Main/Scaler software version (see "Service Alignment Mode" for an explanation), and the service mode (CSM = Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Displays the type number version of the set.
5. **aaaaaa / b.ccc** Firmware identification of the Pacific 3 and the OTC:
 - **aaaaaa** = the firmware version of the Pacific 3 (Pixel+)
 - **b.ccc** = the firmware version of the OTC (for the 1000 page TXT decoder).
6. Indicates the television is receiving an "IDENT" signal on the selected source. If no "IDENT" signal is detected, the display will read "NOT TUNED".
7. Displays the detected Colour system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

How to Exit

To exit CSM, use one of the following methods:

- Press the MENU button twice, or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Problems and Solving Tips Related to CSM

5.3.1 Picture Problems

Note: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

Picture too Dark or too Bright

If:

- The picture improves when you press the SMART PICTURE button on the remote control transmitter, or
- The picture improves when you enter the Customer Service Mode,

Then:

1. Press the SMART PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to select the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys (if necessary) to select BRIGHTNESS.
6. Press the MENU LEFT/RIGHT keys to increase or decrease the value of the selected parameter.
7. Use the MENU UP/DOWN keys to select STORE.
8. Press the MENU RIGHT key to store the new value.
9. Press the MENU key to exit the PERSONAL picture mode.

White Line around Picture Elements and Text

If:

The picture improves after you have pressed the SMART PICTURE button on the remote control transmitter,

Then:

1. Press the SMART PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to select the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys (if necessary) to select SHARPNESS.
6. Press the MENU LEFT/RIGHT keys to increase or decrease the value of the selected parameter.
7. Use the MENU UP/DOWN keys to select STORE.
8. Press the MENU RIGHT key to store the new value.
9. Press the MENU key to exit the PERSONAL picture mode.

Snowy Picture

Check CSM line 6. If this line reads "Not Tuned", check the following:

- Antenna not connected. Connect the antenna.
- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 10). Check the tuner and replace/repair the tuner if necessary.

Black and White Picture

If:

- The picture improves after you have pressed the SMART PICTURE button on the remote control transmitter,

Then:

1. Press the SMART PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to select the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys (if necessary) to select COLOUR.
6. Press the MENU LEFT/RIGHT keys to increase or decrease the value of the selected parameter.
7. Use the MENU UP/DOWN keys to select STORE.

8. Press the MENU RIGHT key to store the new value.
9. Press the MENU key to exit the PERSONAL picture mode.

5.4 Service Tools

5.4.1 ComPair

Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

1. ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
2. ComPair allows very detailed diagnostics (on I²C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I²C commands yourself because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS-232) cable.

For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatically (by communicating with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I²C/UART level. ComPair can access the I²C/UART bus of the television. ComPair can send and receive I²C/UART commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I²C/UART buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extent. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions (*e.g. Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (*e.g. Measure test-point 17 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (*e.g. text or a waveform picture*) that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

How to Connect

This is described in the chassis fault finding database in ComPair.

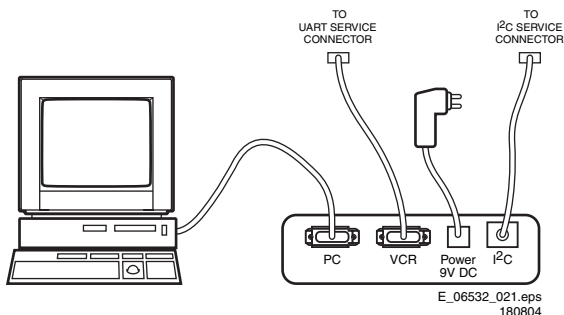


Figure 5-6 ComPair interface connection

How to Order

- ComPair order codes (EU/AP/LATAM):
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excl. transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002), 3122 785 60110 (year 2003 onwards).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer (UK): 4822 727 21633.
- ComPair interface cable: 3122 785 90004.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.

Note: If you encounter any problems, contact your local support desk.

5.4.2 LVDS Tool**Introduction**

This service tool (also called "ComPair Assistant 1") may help you to identify, in case the TV does not show any picture, whether the Small Signal Board (SSB) or the display of a Flat TV is defective.

Furthermore it is possible to program EPLDs with this tool (Byte blaster). Read the user manual for an explanation of this feature.

Since 2004, the LVDS output connectors in our Flat TV models are standardised (with some exceptions). With the two delivered LVDS interface cables (31p and 20p) you can cover most chassis (in special cases, an extra cable will be offered).

When operating, the tool will show a small (scaled) picture on a VGA monitor. Due to a limited memory capacity, it is not possible to increase the size when processing high-resolution LVDS signals (> 1280x960). Below this resolution, or when a DVI monitor is used, the displayed picture will be full size.

Generally this tool is intended to determine if the SSB is working or not. Thus to determine if LVDS, RGB, and sync signals are okay.

How to Connect

Connections are explained in the user manual, which is packed with the tool.

Note: To use the LVDS tool, you must have ComPair release 2004-1 (or later) on your PC (engine version >= 2.2.05). For every TV type number and screen size, one must choose the proper settings via ComPair. The ComPair file will be updated regularly with new introduced chassis information.

How to Order

- LVDS tool (incl. two LVDS cables: 31p and 20p): 3122 785 90671.
- LVDS tool Service Manual: 3122 785 00810.
- LVDS cable 30p (for LC4.3): 3122 785 90821 (available soon).
- LVDS cable 41p -> 31p for HD PDPs (dual -> single LVDS): 3122 785 90831 (available soon).

5.5 Error Codes

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

5.5.1 How to Read the Error Buffer

You can read the error buffer in 3 ways:

- On screen via the SAM (if you have a picture).
Examples:
 - ERROR: 0 0 0 0 0 : No errors detected
 - ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error
 - ERROR: 9 6 0 0 0 : Error code 6 was detected first and error code 9 is the last detected (newest) error
- Via the blinking LED procedure (when you have no picture). See "The Blinking LED Procedure".
- Via ComPair.

5.5.2 How to Clear the Error Buffer

The error code buffer is cleared in the following cases:

- By using the CLEAR command in the SAM menu:
 - To enter SAM, press the following key sequence on the remote control transmitter: "062596" directly followed by the OSD/i+ button (do not allow the display to time out between entries while keying the sequence).
 - Make sure the menu item CLEAR is selected. Use the MENU UP/DOWN buttons, if necessary.
 - Press the MENU RIGHT button to clear the error buffer. The text on the right side of the "CLEAR" line will change from "CLEAR?" to "CLEARED"
- If the contents of the error buffer have not changed for 50 hours, the error buffer resets automatically.

Note: If you exit SAM by disconnecting the mains from the television set, the error buffer is not reset.

5.5.3 Error Codes

In case of non-intermittent faults, write down the errors present in the error buffer and clear the error buffer before you begin the repair. This ensures that old error codes are no longer present.

If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error and not the actual cause of the problem (for example, a fault in the protection detection circuitry can also lead to a protection).

Table 5-1 Error code overview

Error	Error Description	Check Item	Diagram
0	No Error		
1	Mis-match of TV (Hercules) SW and Scaler SW	Software versions	N.A.
2	+12V from PSU error	PSU	A
3	Plasma I ² C error (only for plasma sets)	N.A.	N.A.
4	I ² C error while communicating with the Genesis Scaler	7801	B7 + B8
5	+5V protection	7752	B6
6	General I ² C error; communication between ADC, analogue tuner, and/or Columbus I ² C failed	1102, 7L01, 7M00	B1 + B18 + B19
7	I ² C error while communicating with ADC	7L01	B18
8	I ² C error while communicating with the Scaler EEPROM	7C01	B11
9	I ² C error while communicating with the Hercules EEPROM (NVM for TV). Remark: when the Hercules EEPROM is defective, the Hercules should operate with its default values.	7217	B2
10	I ² C error while communicating with the PLL tuner	1102	B1
11	I ² C error while communicating with the 3D combfilter IC-7M00 (Columbus)	7M00	B19
12	I ² C error while communicating with iBoard uP (only iTV sets)	N.A.	N.A.
13	I ² C error while communicating with the HDMI decoder IC-7D03 (only for NAFTA and AP)	N.A.	N.A.
14	Read-write error with the Scaler SDRAM	7B01	B10
15	I ² C error while communicating with the OTC	-	-
16	I ² C error while communicating with EPLD or Pacific III	7N02	B20 + B21
17	I ² C error while communicating with the Digital Module (only for digital sets)	N.A.	N.A.
18	IBO hardware error (only for digital sets)	N.A.	N.A.

Any RC5 command terminates this sequence.

Example of error buffer: **12 9 6 0 0**

After entering SDM, the following occurs:

- 1 long blink of 5 seconds to start the sequence,
- 12 short blinks followed by a pause of 1.5 seconds,
- 9 short blinks followed by a pause of 1.5 seconds,
- 6 short blinks followed by a pause of 1.5 seconds,
- 1 long blink of 1.5 seconds to finish the sequence,
- The sequence starts again with 12 short blinks.

5.7 Fault Finding and Repair Tips

Notes:

- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

5.7.1 NVM Editor

In some cases, it can be handy if one directly can change the NVM contents. This can be done with the "NVM Editor" in SAM mode. With this option, single bytes can be changed.

Caution:

- **Do not change the NVM settings without understanding the function of each setting, because incorrect NVM settings may seriously hamper the correct functioning of the TV set!**
- **Do not change the Scaler NVM settings, as this will hamper the DVI functionality of the TV set!**
- Always note down the existing NVM settings, before changing the settings. This will enable you to return to the original settings, if the new settings turn out to be incorrect.

Table 5-2 NVM editor overview

	Hex	Dec	Description
.ADR	0x000A	10	Existing value
.VAL	0x0000	0	New value
.Store	Store?		

5.6 The Blinking LED Procedure

Using this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful when there is no picture.

When the SDM is entered, the front LED will blink the contents of the error-buffer:

- The LED blinks with as many pulses as the error code number, followed by a time period of 1.5 seconds, in which the LED is off.
- Then this sequence is repeated.

Table 5-3 NVM Default values (option bit settings through NVM Editor in SAM Mode)

Byte Nr.	Bit	Feature/Mode	Description	26PF5321/10/12 32PF5321/10/12 37PF5321/10/12 26PF7321/12 32PF7321/12 37PF7321/10/12
Byte 0 174(dec)	0	QSS (LSB)	Mode of quasi split sound amplifier	1
	1	FMI	Connection of output of QSS amplifier	1
	2	HCO	EHT tracking mode	0
	3	HP2	Synchronization of OSD/Text display	1
	4	FSL	Forced slicing level for vertical sync	1
	5	TFR	DC transfer ratio of luminance signal	1
	6	OSVE	Black current measuring in overscan	0
	7	MVK (MSB)	(For Future Usage, as defined by software)	0
		Total Dec Values		59
		Total Hex Values		3B
Byte 1 175(dec)	0	PSE	PSE	0
	1	OPC	OPC	0
	2	PRIS	PRIS	0
	3	CONTINUOUS FACTORY	Continuous factory mode	1
	4	WHITE PATTERN ON	Last colour pattern status in factory mode	0
	5	SDM MODE	Service default mode on/off	0
	6	SAM MODE	Service Align mode on/off	0
	7	SVMA	Scavem On / Off	0
		Total Dec Values		8
		Total Hex Values		08
Byte 2 176(dec)	0	MUTE STATUS	Mute status	0
	1	TUNER AUTO MODE	Auto mode	1
	2	CABLE MODE	Cable/Antenna mode	0
	3	LAST POWER MODE	Last power status of the set	1
	4	CHILD LOCK MODE	Child lock enabled	0
	5	SURF MODE	Surf mode on/off	0
	6	FACTORY MODE	Factory mode on	1
	7	PSNS	For PAL colour enhancement in ES4	1
		Total Dec Values		202
		Total Hex Values		CA
Byte 3 177(dec)	0	RADIO/TV MODE	Radio mode or TV mode	0
	1	WAKE-UP MODE	WAKE-UP MODE	0
	2	HOTEL MODE	TV in Hotel mode	0
	3	HOTEL KBD LOCK	Keyboard locked	0
	4	HBL	HBL	0
	5	BLS	Blue stretch mode	1
	6	SL	SL	0
	7	CFA0	Comb filter On/Off	0
		Total Dec Values		32
		Total Hex Values		20
Byte 4 178(dec)	0	Signal Strength	Signal Strength Switch in MK2	0
	1	LPG	LPG	0
	2	DVD TRAY LOCK	Lock/Unlock DVD tray	0
	3	SCRSaver MODE	Screen saver mode	1
	4	BKS	Black Stretch Mode	1
	5	BSD	Black Stretch Depth	1
	6	CRA0	Coring on SVM	1
	7	PIP QSS	PIP QSS	0
		Total Dec Values		120
		Total Hex Values		78
Byte 5 179(dec)	0	FFI	Fast Filter	0
	1	NNR	No red reduction during blue stretch	1
	2	MUS	NTSC matrix	1
	3	GAM	Gamma control	1
	4	CBS	Control sequence of beam current limiting	0
	5	LLB	Low level of beam current limiter	0
	6	DSA	Dynamic skin tone angle area	1
	7	DSK	Dynamic skin tone angle on/ off	0
		Total Dec Values		78
		Total Hex Values		4E

Byte Nr.	Bit	Feature/Mode	Description	26PF5321/10/12 32PF5321/10/12 37PF5321/10/12 26PF7321/12 32PF7321/12 37PF7321/10/12
Byte 6 180(dec)	0	LTI status	LTI last status	0
	1	Inc_Life_Time	Inc_Life_Time	0
	2	PC_Mode	PC_Mode	0
	3	HD_Mode	HD_Mode	0
	4	Tact_Switch	Tact_Switch	0
	5	Set_In_Special_Stby	Set_In_Special_Stby	0
	6	Hotel_OSDDisplay	Hotel_OSDDisplay	0
	7	Hotel_MonitorOut	Hotel_MonitorOut	0
		Total Dec Values		0
Byte 7 181(dec)		Total Hex Values		00
	0	Hotel_IconMode	Hotel_IconMode	0
	1	DBE	DBE	1
	2	SD	SD	0
	3	Set_in_PC_Sleep_Mode	Set_in_PC_Sleep_Mode	0
	4	Reserved	Reserved	1
	5	Reserved	Reserved	0
	6	Reserved	Reserved	0
	7	Reserved	Reserved	0
		Total Dec Values		18
		Total Hex Values		12

5.7.2 Load Default NVM Values

In case a blank NVM is placed or when the NVM content is corrupted, default values can be downloaded into the NVM. (For empty NVM replacement, short the SDM with a jumper and apply the mains voltage. Remember to remove the jumper after the reload is completed). After the default values are downloaded, it will be possible to start up and to start aligning the TV set. This is no longer initiated automatically; to initiate the download the following action has to be performed:

1. Switch "off" the TV set by disconnecting the AC Power plug.
2. Short circuit an SDM jumper (keep short-circuited).
3. Press P+ or Ch+ on the local keyboard (and keep it pressed).
4. Switch on the TV set via the AC Power plug.
5. Keep pressing the P+/Ch+ button until the set has started up and the SDM is shown.

Alternative method:

1. Go to SAM.
2. Select NVM Editor (not SC NVM Editor).
3. Select ADR (address) to 1 (dec).
4. Change the VAL (value) to 170 (dec).
5. Store the value.
6. Disconnect the mains plug and wait for a few seconds.
7. Reconnect the mains plug and wait until the set goes into its standby mode (red LED lights up).
8. Restart the set.

5.7.3 Flash New Scaler Software

When you need to flash new scaler software, follow the instructions in ComPair. Make sure you put the set in one of the Service Modes, SDM/SAM/CSM, before you start flashing. This reduces the risk of the set hanging during the flashing procedure.

5.7.4 Tuner and IF

No Picture in RF Mode, but there is a Noise Raster

1. Check whether picture is present in AV. If not, go to Video processing troubleshooting section.
2. If present, check if the Option settings are correct.
3. Check if all the supply voltages are present (3.3/5/8/12/33 V).
4. Check if the I²C lines are working correctly (3.3 V).

5. Manually store a known channel and check if there is IF output at Tuner pin 11.
6. Check the tuning DC voltage at pin 2 of the Tuner. The DC voltage should vary according to the frequency/channel being chosen.
7. If the tuning voltage is OK, check the tuner output, pin 11.
8. If it has no output, the Tuner may have a defect. Change the Tuner.

Sound in Picture Problem for L' System (rolling horizontal lines)

1. Check whether AGC L' in SAM mode is set to 0.
2. If yes, align the set to correct value.

Required System is not Selected Correctly

Check whether a Service jumper (#4204 & 4205, 0805 size) is present. If yes, remove it.

5.7.5 Video Processing

No Power

1. Check +12 V and 3V3 at position 1J02.
2. If no supply, first check the connector 1J02.
3. If the connector is correct, check the power supply board.

Power Supply is Correct, but no Green LED

1. Check if the connectors 1K00 are properly inserted.
2. If they are inserted correctly, check if the 3V3 is present.

No Picture Display (blank screen with correct sound output)

1. Check whether the user menu is visible.
2. If the user menu is OK, activate teletext mode.
3. If teletext is OK, the problem is in the ADC (B18) & Columbus 3D combfilter (B19), if present (depending on model, see also paragraph "Teletext Path" in chapter 9).
4. If the user menu is not visible, check if the LCD panel backlight is ON.
5. If the backlight is OFF, the problem is in the power supply board or LCD panel. Also check pin 12 (LAMP_ON_OFF) of 1J02. It should be HIGH during normal operation.

Note: For fault finding purposes, it is important to know the following: in Pixel Plus and Digital Crystal Clear models, which have an ADC (B18) and Columbus 3D combfilter (B19), the digital input of the scaler is used for the digital video path (Hercules output), whereas the analogue RGB input (analogue input of the scaler) is only used for teletext. This means that no

mixed mode (video plus teletext simultaneously) is possible. If there is sound and teletext, but no video and user menu (blank screen), the digital path (Hercules - ADC - Columbus - Scaler) is faulty. If there is sound but no teletext, the back-end part (Scaler - LCD panel) is faulty. In Crystal Clear models, which do not have an ADC and Columbus, the RGB path (analogue input of scaler) is used for both video and teletext.

No TV, but PC is Present

1. Check if Hsync_SDTV and Vsync_SDTV are present at pin 1 & pin13 of 7E03.
2. If they are present, check teletext output.
3. If there is no teletext output, the IC TDA150xx may be defect.

5.7.6 Power Supply

Check Fuse

The power supply (various models are used) contains one fuse near the AC input connector X002.

1. Check with power supply in "off" state by means of ohmic measurement.
2. Fuse X102 may open in case of severe lightning strikes and/or failures in the power supply.
3. Check the standby signal at pin 10 of X200. ON is HIGH, OFF is LOW. During standby mode only the 3V3 is present at pin 10.

Protections Concept on Power Supply Board (two models)

1. **12 V output (pin 8 of X200):** Short-circuit protected by 2.5 A fuse X610. Over-voltage protection when output voltage is more than 40% above nominal value.
2. **Vaudio output (+18 or +24 V, depending on power supply model used); (pin 1 of X200):** Short-circuit proof (+18 V version has 2.5 A fuse X660). Over voltage protection when output voltage is more than 40% above nominal value.
3. **3V3STBY output (pin 3&4 of X200):** Short-circuit proof with auto-restart. Over voltage protection when output voltage is more than 40% above nominal value.
4. **24 V output (for inverter X520 & X530):** Short-circuit proof with auto-restart. Over voltage protection when output voltage is more than 40% above nominal value.

Standby Mode

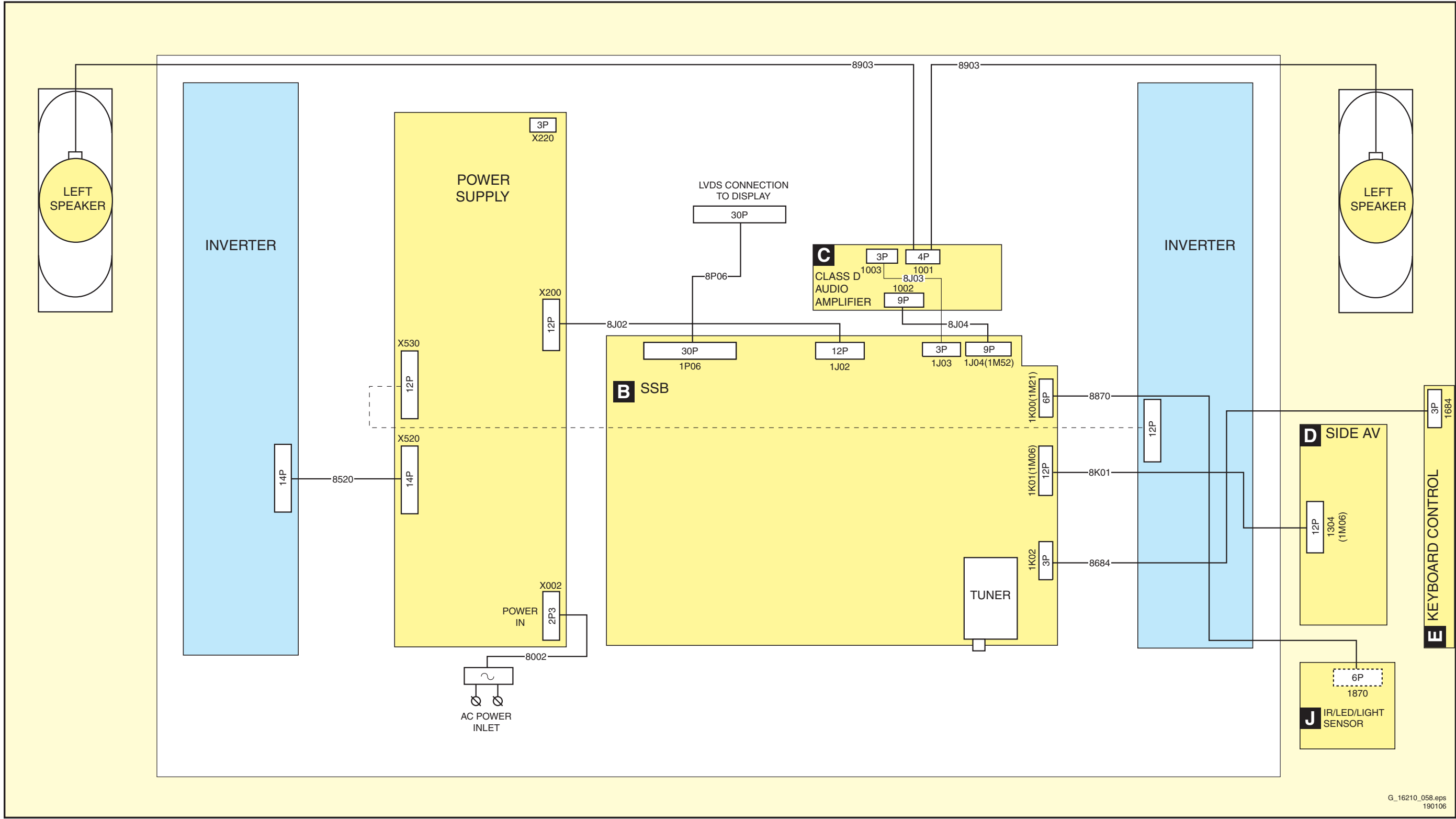
1. Apply a 12 ohm load resistor of sufficient power rating to all outputs mentioned above (+12 V, +18/ 24 V, +3V3 and +24 V). Connect the STBY pin (pin 10 of X200) to logical "L" (low), i.e. to GND.
2. Over an input voltage range of 90 V_{AC} to 276 V_{AC} only the +3V3 STBY output shall be up.

Normal Mode:

1. Apply a 12 ohm load resistor of sufficient power rating to all outputs mentioned above (+12 V, +18/ 24 V, +3V3 and +24 V). Connect the STBY pin (pin 10 of X200) to logical "H" (high), i.e. to the +3V3 STBY output via a 2,2 k pull up resistor.
2. Over an input voltage range of 90 V_{AC} to 276 V_{AC} all outputs shall be up. The voltage on the +3V3 STBY output shall be 3.3 V over the entire input voltage range. The voltage on the big 400 V capacitor on the power supply should also be 400 V $\pm$ 10%.

6. Block Diagrams, Test Point Overviews, and Waveforms

Wiring Diagram 26" & 32"
WIRING 26"- 32"



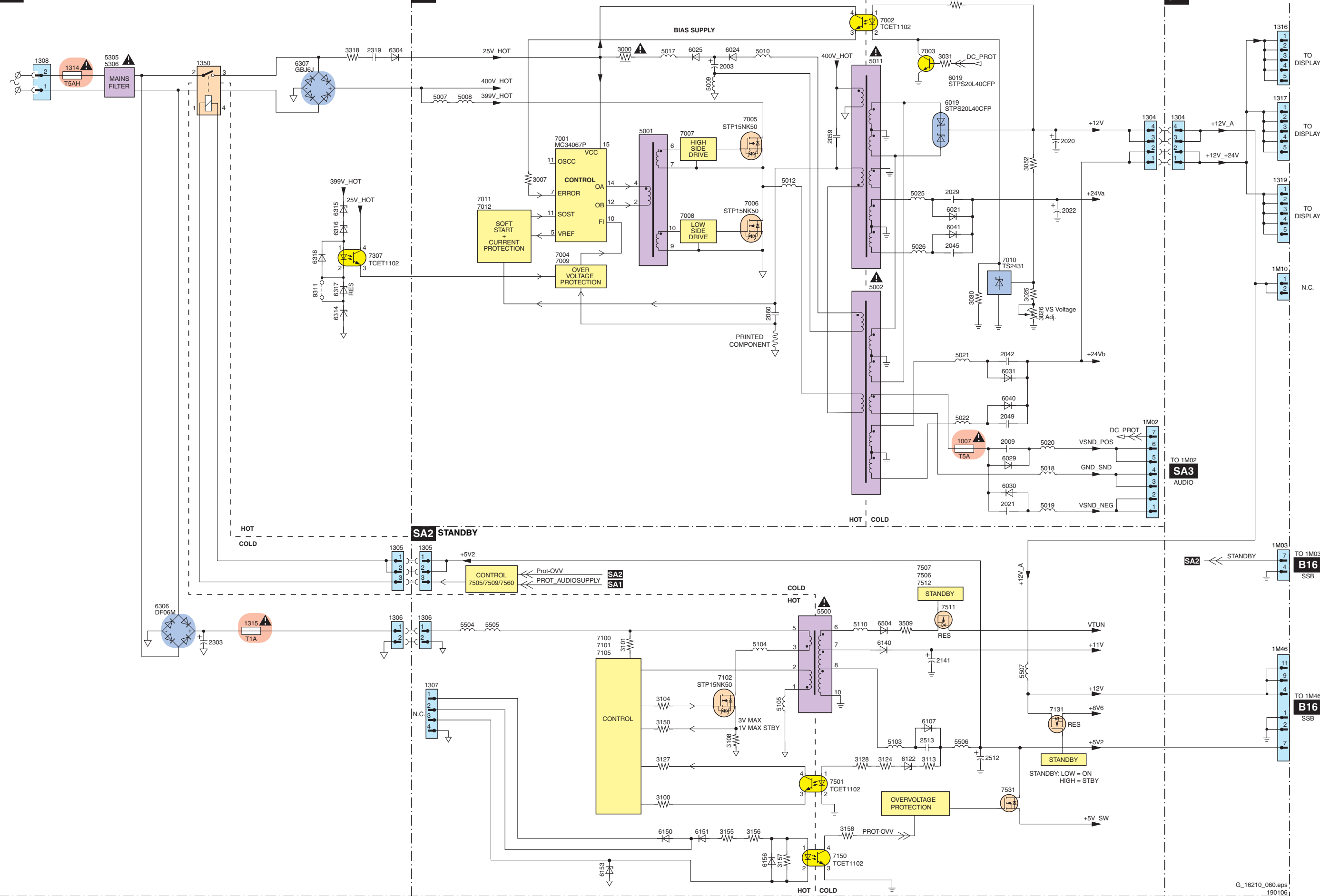
Block Diagram Supply 37"

SUPPLY 37"

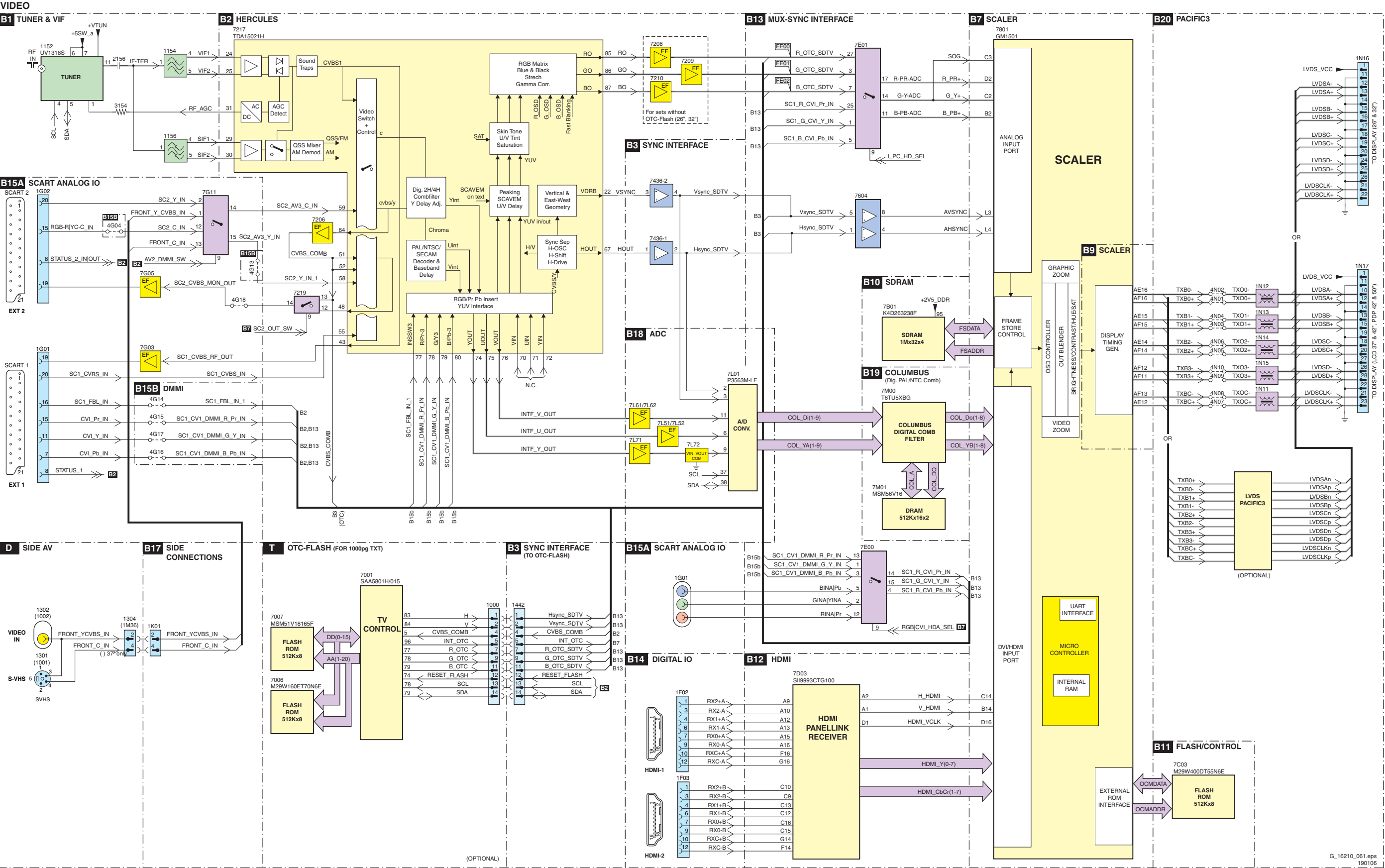
A1 MAINS FILTER + STANDBY

A2 SUPPLY

SA1 CONNECTIONS

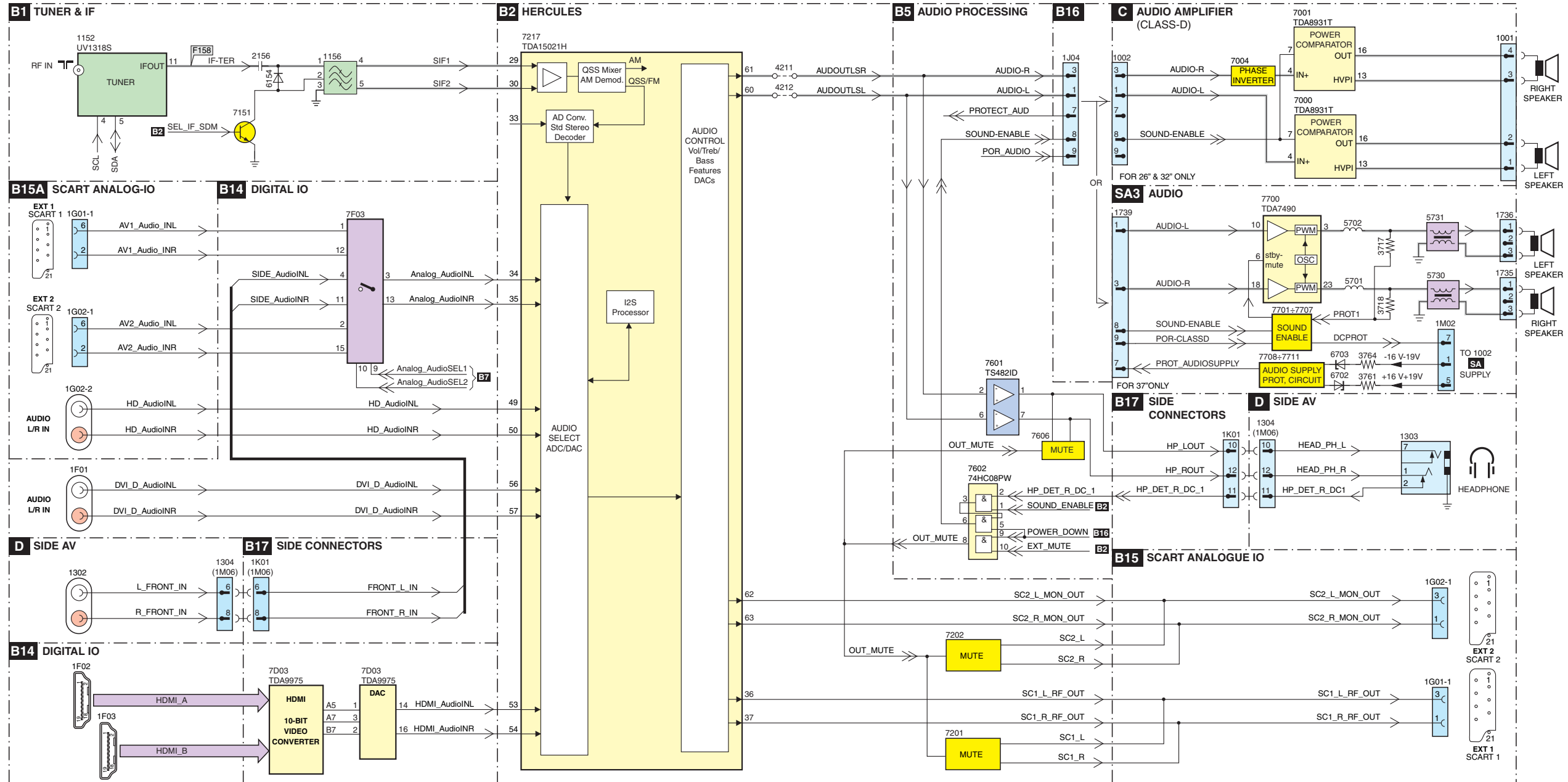


Block Diagram Video

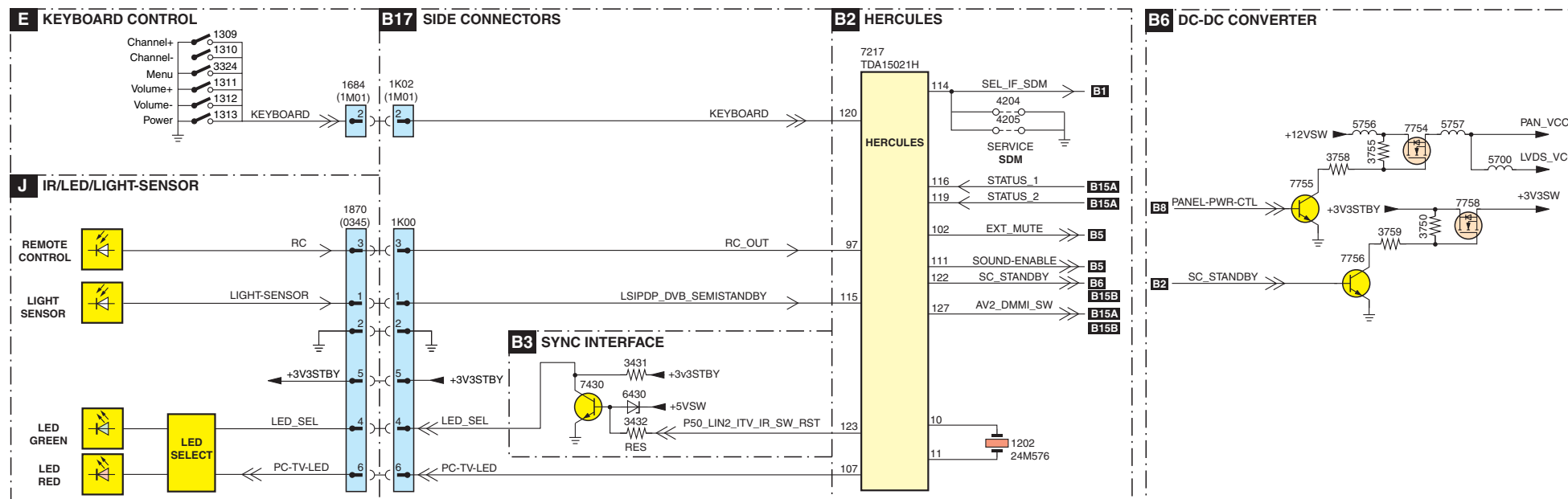


Block Diagram Audio

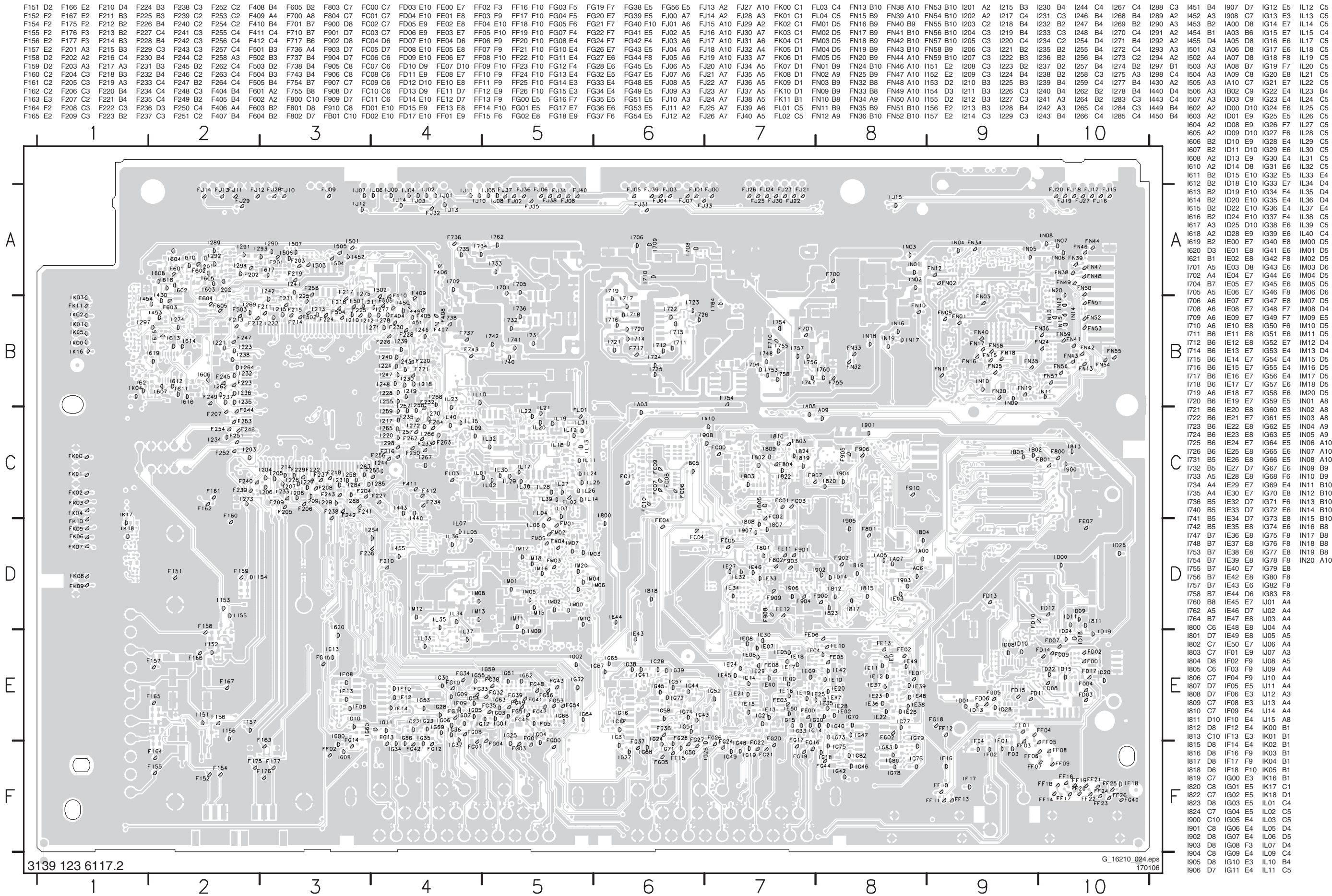
AUDIO

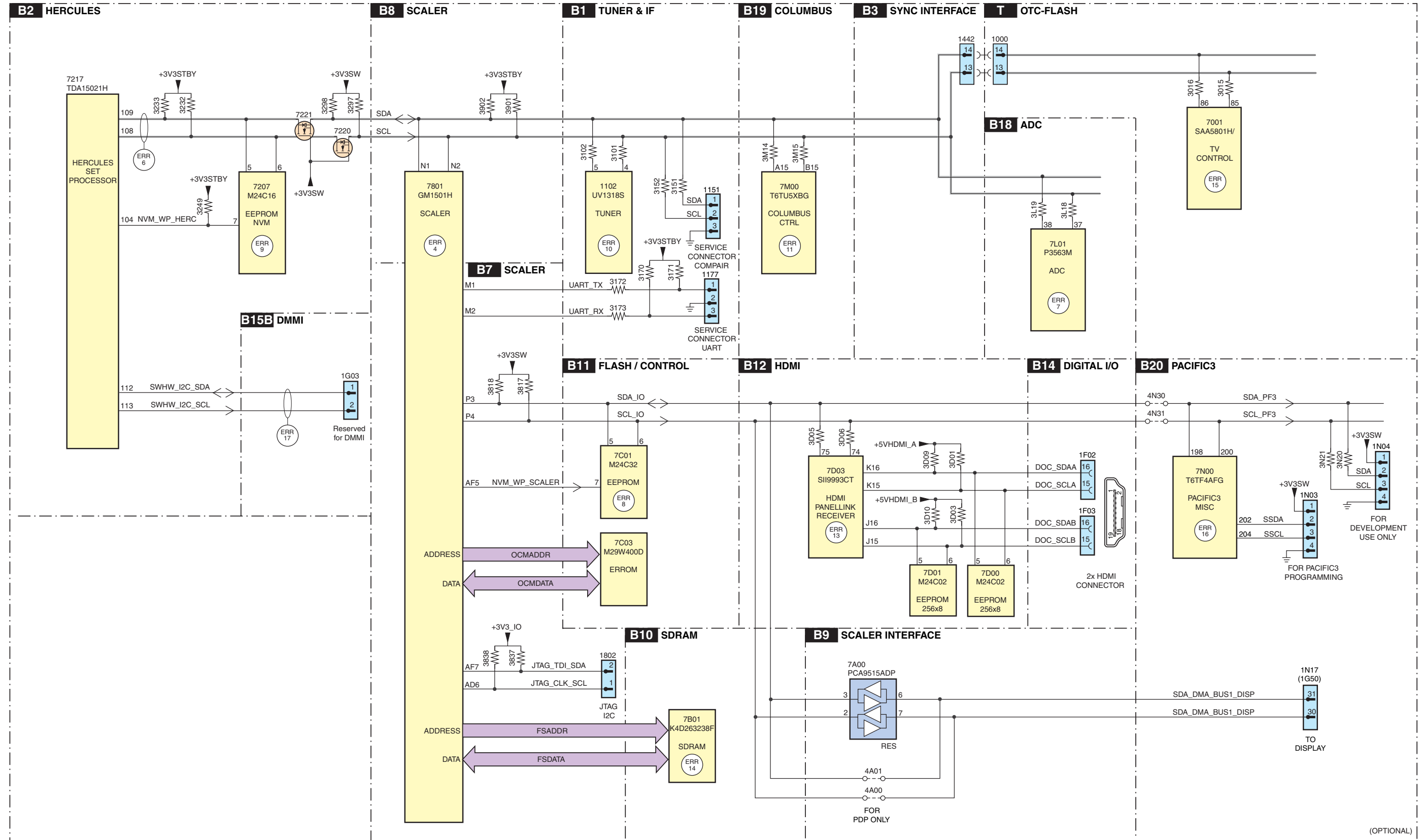


CONTROL

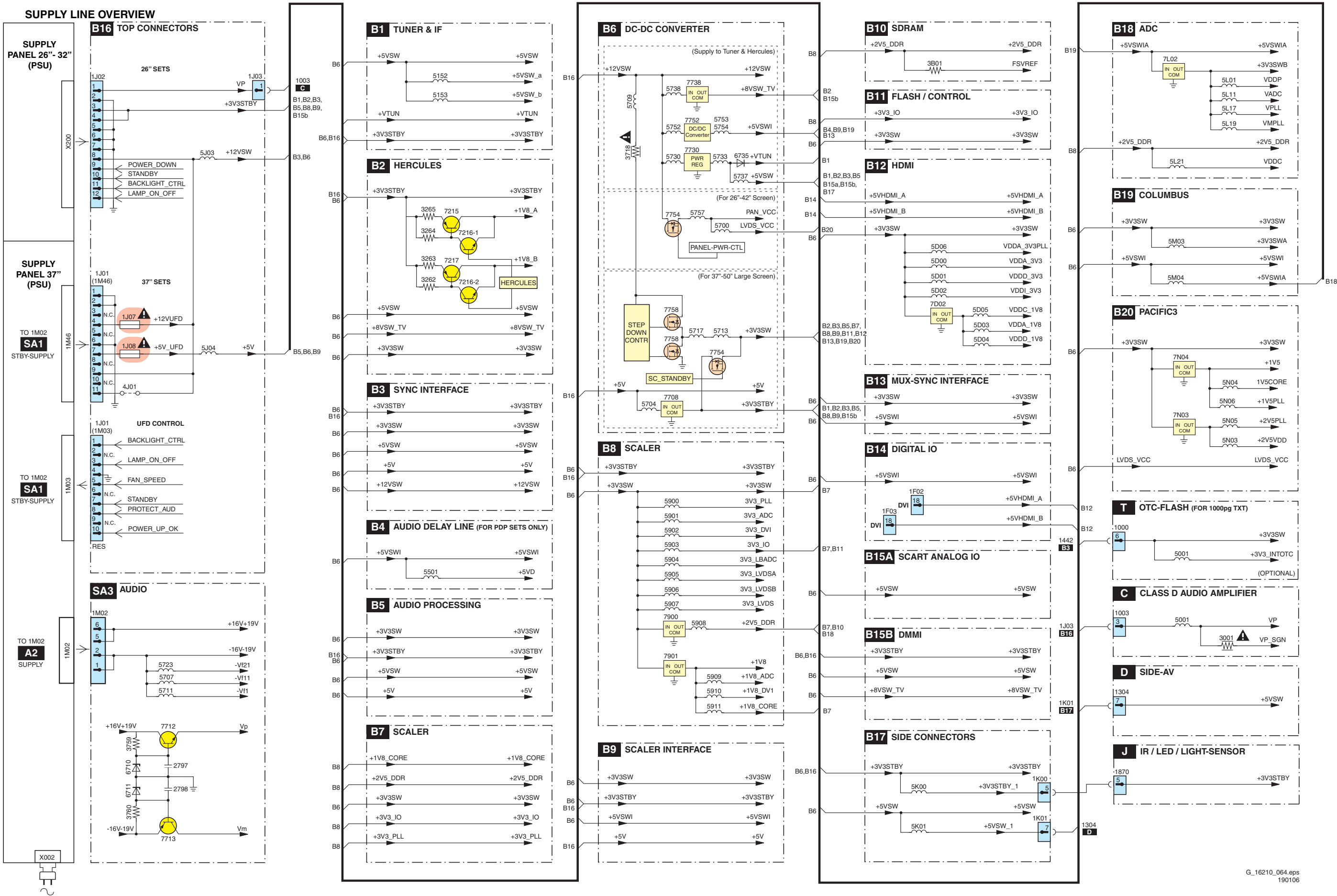


Test Point Overview Small Signal Board



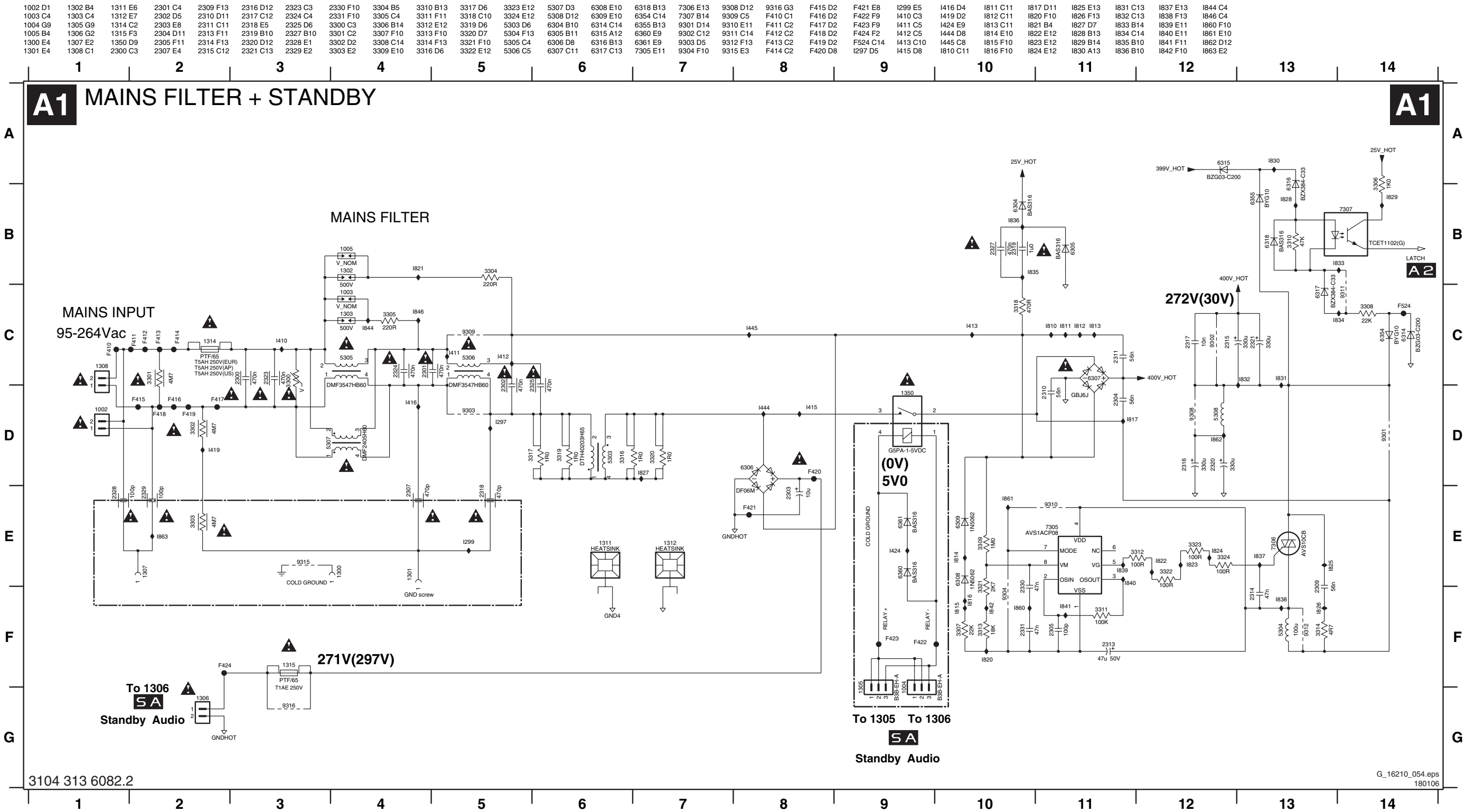
I²C OverviewI²C

Supply Voltage Overview

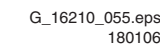


7. Circuit Diagrams and PWB Layouts

PSU (37") : Mains Filter & Standby



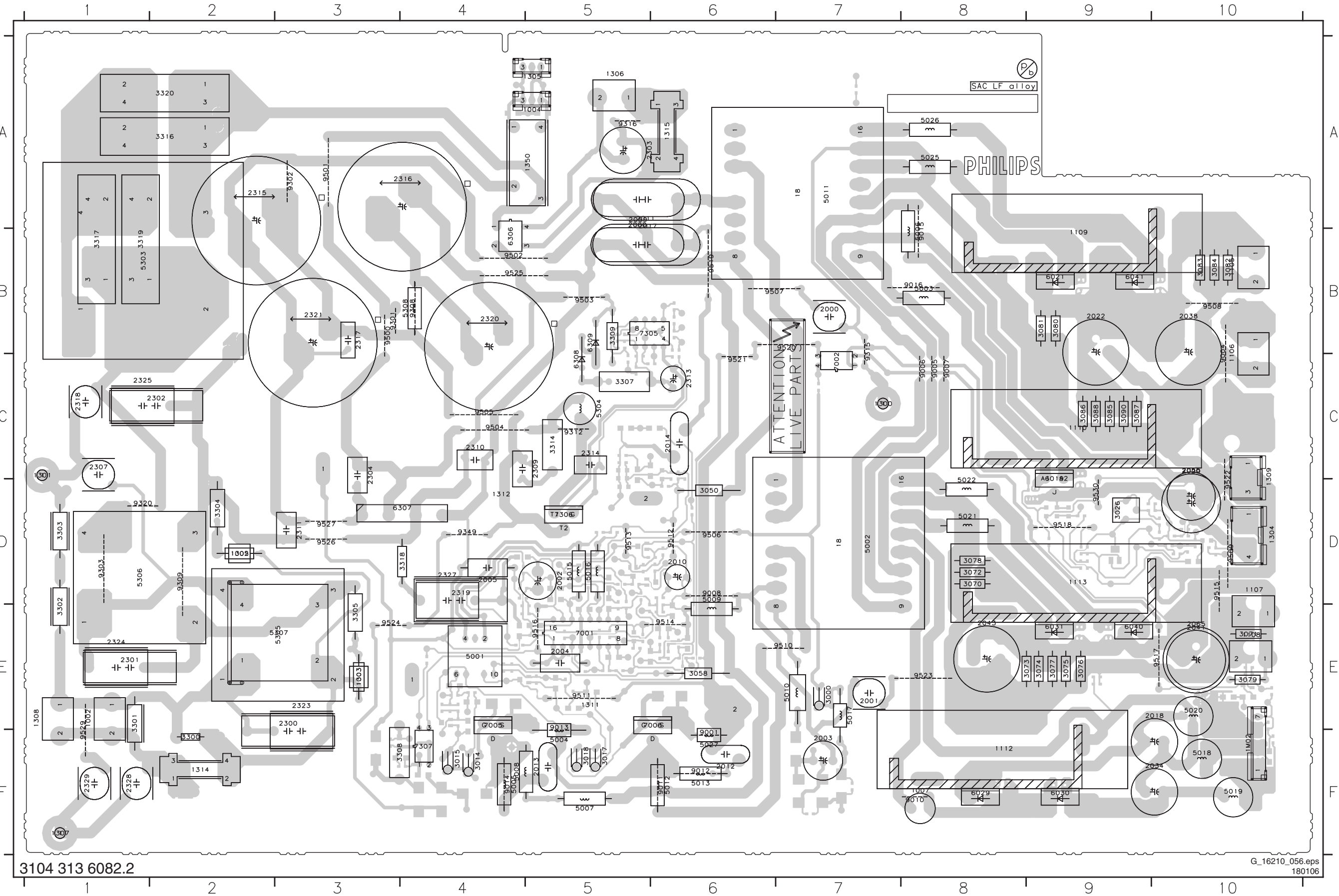
A2 SUPPLY



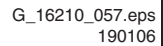
2007 G11	3035 E5
1105 G7	3036 H4
1106 H7	3037 C12
1107 H7	3038 D13
1108 I7	3039 H3
1109 H9	3040 D13
1110 H10	3041 E3
1112 H10	3042 G3
1113 I9	3043 D1
1304 H8	3044 F2
1309 H8	3045 F5
1M02 H13	3046 F5
2001 G9	3047 E2
2001 G9	3048 D1
2002 B5	3049 E3
2003 A3	3050 E2
2004 C2	3051 F3
2005 D1	3052 C12
2006 C2	3054 F4
2007 E1	3055 I5
2008 G3	3056 I3
2009 H11	3057 B12
2010 H1	3058 E2
2011 E8	3059 C1
2012 E8	3060 H4
2013 H8	3061 C12
2014 F6	3062 C7
2015 F5	3063 C12
2016 D5	3066 H3
2017 C8	3065 B16
2018 H12	3067 H13
2019 H2	3068 A10
2020 D11	3070 A10
2021 I1	3071 A10
2022 E11	3072 A10
2023 B12	3073 A11
2024 D12	3074 A11
2025 D13	3075 A11
2026 G3	3076 A11
2027 C10	3077 A11
2028 C10	3078 A12
2029 E10	3079 A12
2030 E12	3080 A10
2031 C12	3081 A10
2032 D13	3082 A10
2033 D13	3083 A11
2034 H12	3084 A11
2035 E7	3085 A11
2036 C7	3086 A11
2037 H4	3087 A11
2038 E11	3088 A12
2039 C10	3089 H5
2040 C11	3090 A12
2041 C12	3091 A12
2042 E12	3099 A13
2043 G12	5001 C6
2044 D11	5002 F9
2045 E10	5003 C10
2046 I3	5004 C8
2047 I4	5005 C8
2048 I4	5006 D10
2049 G12	5007 A8
2050 F4	5008 B8
2051 H10	5009 B5
2052 D7	5010 A4
2053 D5	5011 D9
2054 C6	5012 B8
2055 D7	5013 D9
2056 B7	5015 C6
2057 C6	5016 D5
2058 C1	5017 A2
2059 C9	5018 H12
2060 E8	5019 I12
2061 C2	5020 H12
2062 D1	5021 G11
2063 F5	5022 G11
2064 D12	5025 E10
2065 G12	5026 E10
2066 D11	5027 E8
3000 A1	6002 C7
3001 C7	6003 C7
3002 C1	6004 D6
3003 C1	6005 D5
3004 D1	6006 I4
3005 C3	6007 C7
3006 D2	6008 D7
3007 E2	6010 G4
3008 E1	6011 F4
3009 E1	6012 E7
3010 H1	6013 C7
3011 H1	6014 H5
3012 F3	6015 G5
3013 G4	6017 I4
3014 C7	6018 E5
3015 C7	6019 C12
3016 C7	6020 E4
3017 D7	6021 E10
3018 E7	6022 H2
3019 E7	6023 E13
3020 E7	6024 A4
3021 G5	6025 A3
3022 C11	6026 H3
3023 D12	6027 C7
3024 D12	6028 E7
3025 E12	6029 H11
3026 E12	6030 H11
3027 G2	6031 G12
3028 G4	6032 A2
3029 E1	6033 C12
3030 E11	6035 C5
3031 C11	6036 C5
3032 C10	6038 D2
3033 H10	6040 E12
3034 E13	6041 E12

Layout PSU (37") (Top Side)

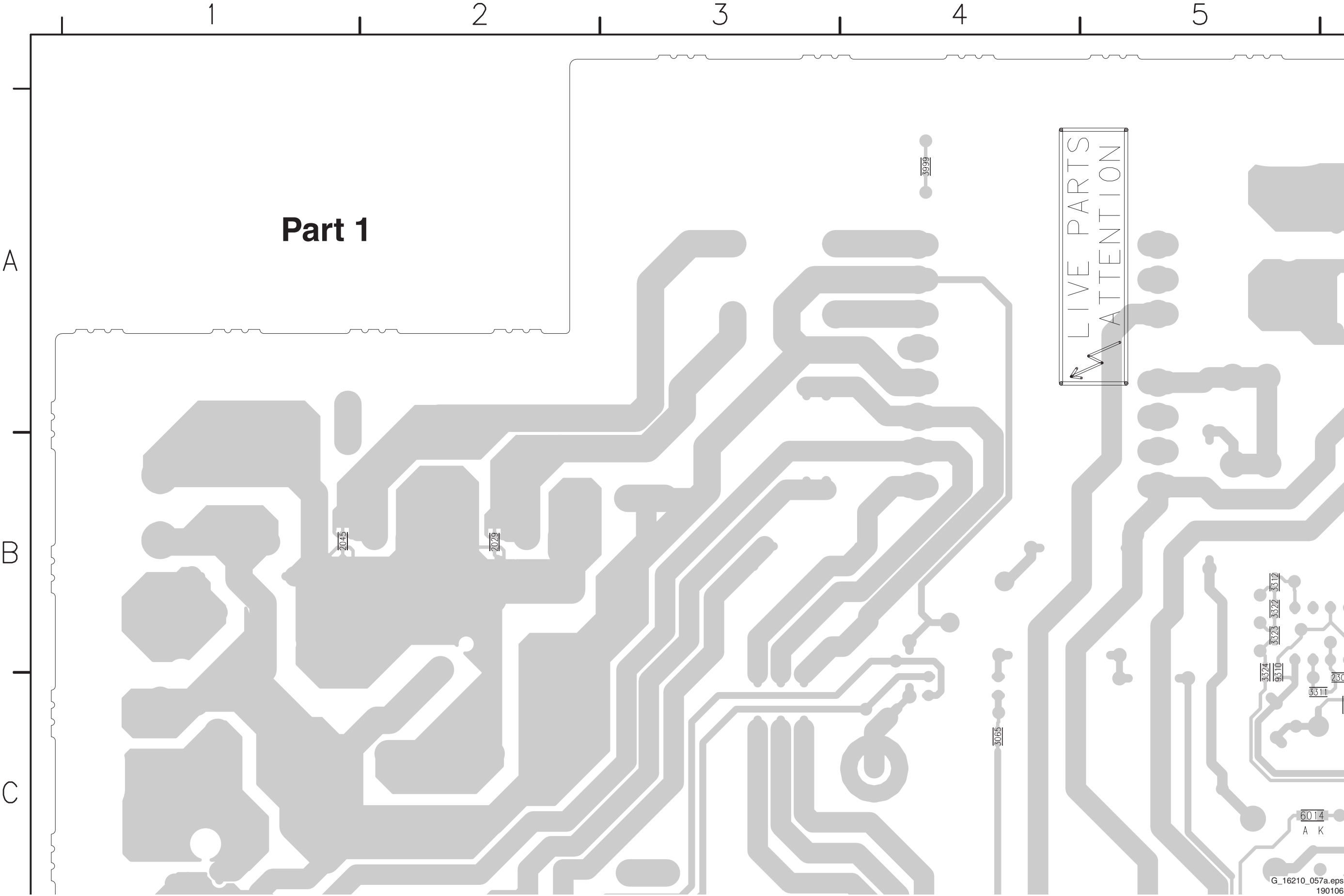
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1003 E3	1109 B8	1304 D10	1314 F2	2004 E5	2018 E10	2060 A5	2307 C1	2317 B3	2327 E4	3026 D9	3075 E9	3083 B10	3301 E2	3314 C5	5003 B8	5011 A7	5020 E10	5305 E2	6031 E9	7002 B7	9005 C8	9014 F4	9312 C5	9503 B5	9511 E5	9519 B6	9527 D3
1004 A5	1110 C8	1305 A5	1315 A6	2005 D4	2020 D10	2065 E10	2309 C4	2318 C1	2328 F1	3050 D6	3076 E9	3084 B10	3302 E1	3316 A1	5004 E5	5012 F5	5021 D8	5306 D1	6040 E9	7005 F4	9006 C8	9015 B8	9315 B7	9504 C4	9512 D6	9520 B6	9529 F1
1005 D2	1112 F8	1306 A5	1350 A5	2010 D6	2022 B9	2066 C10	2310 C4	2319 D4	2329 F1	3058 E6	3077 E9	3085 C9	3303 D1	3317 B1	5005 F4	5013 F6	5022 C8	5307 D3	6041 B9	7006 F5	9007 C8	9016 B8	9316 A5	9505 C4	9513 D5	9521 B6	9530 D9
1007 F8	1113 E8	1307 F1	1M02 F10	2011 A5	2034 F10	2300 E3	2311 D2	2320 B5	3000 E7	3070 D8	3078 D8	3086 C9	3304 D2	3318 D4	5006 B7	5015 D5	5025 A8	5308 B4	6306 B4	7305 B5	9008 D6	9301 B4	9320 D2	9506 D6	9514 E6	9522 C10	
1105 B10	1300 C7	1308 E1	2000 B7	2012 F6	2038 B10	2301 E2	2313 C6	3014 F4	3014 F4	3071 E10	3079 E10	3087 C9	3305 E3	3319 B2	5007 F5	5016 D5	5026 A8	6019 D9	6307 D3	7306 D5	9010 F7	9302 A3	9349 D4	9507 B6	9515 D10	9523 E8	
1106 B10	1301 C1	1309 C10	2001 E7	2013 F5	2041 E10	2302 C2	2314 C5	2323 E3	3015 F4	3072 D8	3080 B9	3088 C9	3307 C5	3320 A1	5008 F4	5017 E7	5027 E6	6021 B9	6308 B5	7307 F4	9011 F6	9303 D1	9500 B3	9508 B10	9516 E5	9524 E3	
1107 D10	1302 D2	1311 E4	2002 D5	2014 C6	2043 E8	2303 A5	2315 A2	2324 E2	3017 F5	3073 E8	3081 B9	3090 C9	3308 F3	5001 E4	5009 E6	5018 F10	5303 A1	6029 F8	6309 B5	9001 F6	9012 F6	9308 B4	9501 A3	9509 D10	9517 E10	9525 B4	



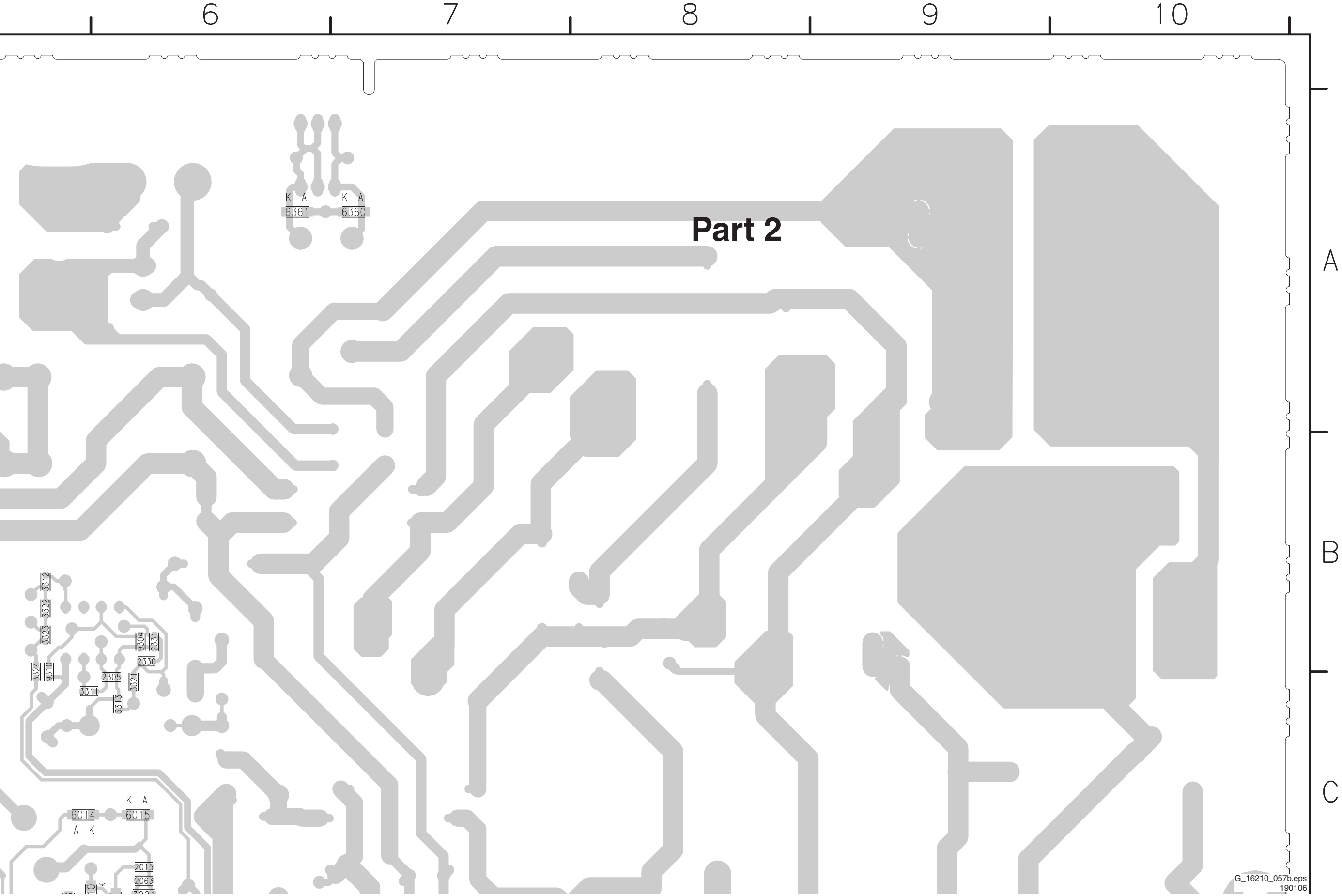
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2007	E6	2021	F2	2028	D2	2035	E6	2044	D2	2050	C5	2056	E7	2064	D1	3003	D7	3009	E6	3019	E7	3025	D1	3032	E1	3038	D1	3044	D6	3051	D5	3059	D7	3066	E1	3310	F7	3323	B5	6005	E6	6012	E5	6020	D6	6027	E7	6038	E6	6314	F8	6355	F7	7008	E7	9003	F4	9528	D7
2008	C5	2023	D2	2029	B2	2036	E7	2045	B1	2051	E2	2057	E7	2305	C6	3004	E6	3010	D5	3020	E7	3027	D6	3033	E2	3039	E5	3045	D6	3052	D1	3060	E5	3067	F1	3311	C5	3324	B5	6006	E5	6013	E7	6022	E5	6028	E6	6042	F1	6315	F7	6360	A7	7009	D6	9009	F4		
2009	F3	2024	D1	2030	D1	2037	D5	2046	E5	2052	E6	2058	E6	2330	B6	3005	E6	3011	E5	3021	C6	3028	D6	3034	D1	3040	D2	3046	C6	3054	C5	3061	E6	3068	D2	3312	B5	3999	A4	6007	E7	6014	C5	6023	D1	6032	F4	6043	E1	6316	F7	6361	A6	7010	D2	9017	E6		
2015	C6	2025	D2	2031	D1	2039	E1	2047	E5	2053	D6	2061	E6	2331	B6	3006	E6	3012	D5	3022	D2	3029	E7	3035	D6	3041	D2	3047	E6	3055	E5	3062	E7	3089	D5	3313	C6	6002	E6	6008	E6	6015	C6	6024	F4	6033	F4	6044	E1	6317	F8	7003	E1	7011	D5	9304	B6		
2016	D6	2026	D5	2032	D1	2040	E6	2048	E5	2054	D6	2062	E6	3001	D6	3007	E6	3013	C5	3023	D1	3030	D2	3036	E5	3042	E6	3048	E6	3056	E5	3063	D1	3091	D1	3321	C6	6003	E7	6010	C6	6017	E5	6025	F4	6035	E6	6304	D7	6318	F7	7004	D6	7012	D6	9310	B5		



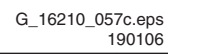
Layout PSU (37") (Part 1 Bottom Side)



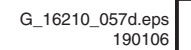
Layout PSU (37") (Part 2 Bottom Side)



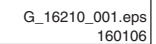
Part 3



A K

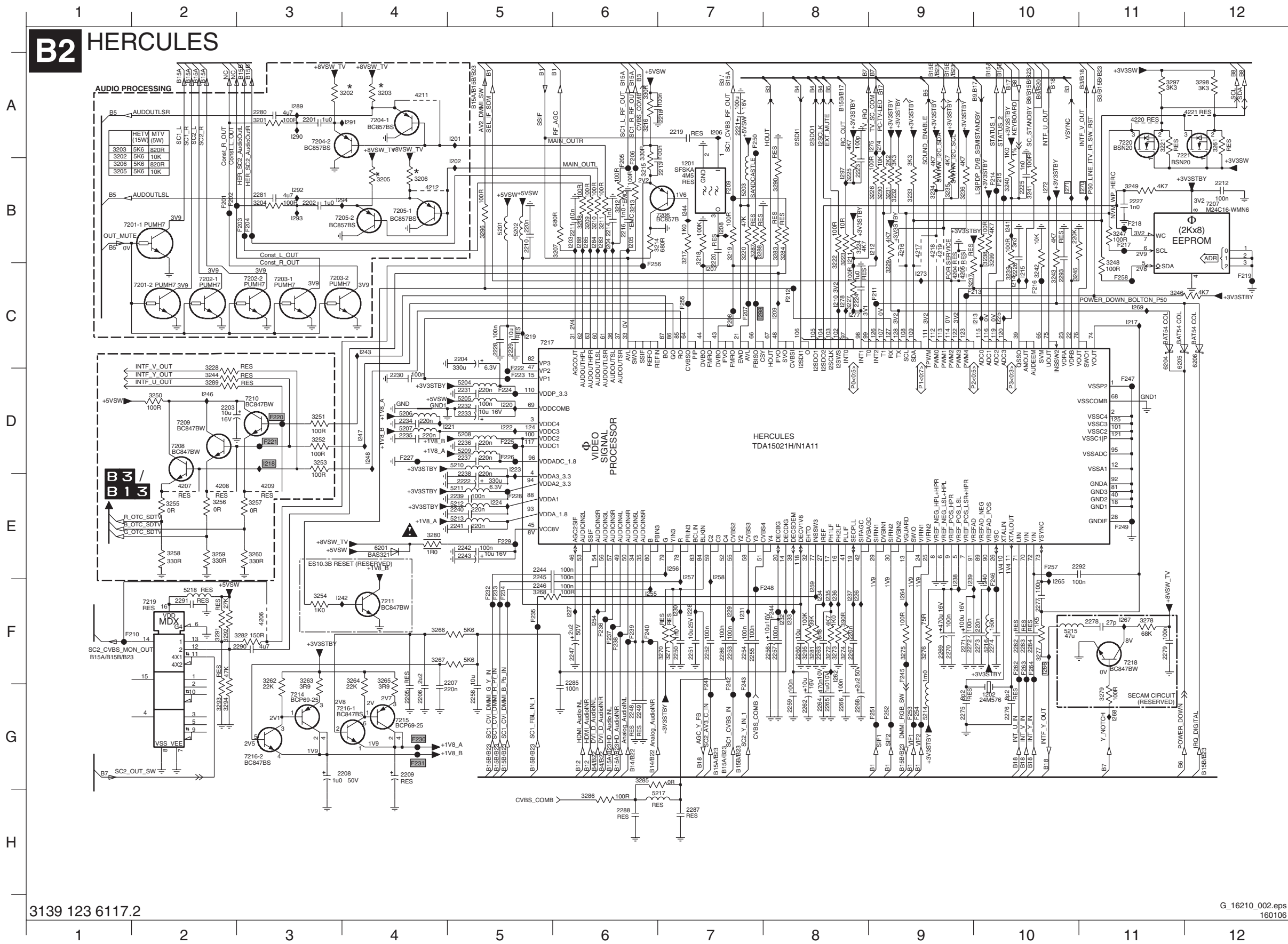


B1 TUNER & IF (EUROPE ONLY)



SSB: Hercules

B2 HERCULES

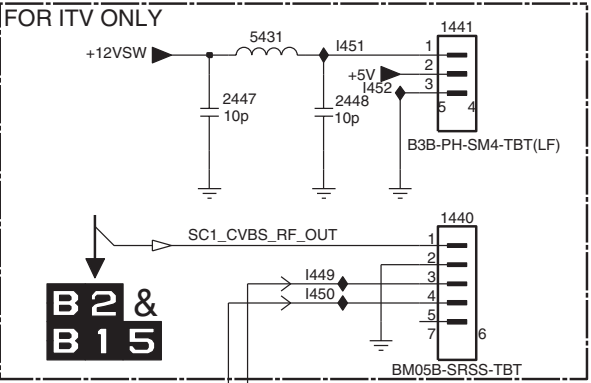


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1202 G10	3212 B6	5201 B5	F255 C7
2201 A3	3213 B6	5202 B5	F256 B6
2202 B3	3214 B7	5203 B7	F257 E10
2203 D2	3215 B6	5204 D5	F258 C11
2204 C5	3216 A6	5205 D5	F262 F10
2205 G4	3217 B7	5206 D4	F263 F10
2206 G4	3218 B7	5207 D4	F264 F10
2207 F5	3219 B7	5208 D5	I201 A5
2208 G4	3220 B7	5209 D5	I202 B5
2209 G4	3221 A11	5210 D5	I203 B6
2210 B5	3222 B8	5211 E5	I204 B6
2211 B6	3223 B8	5212 E5	I205 B6
2212 B12	3224 B8	5213 E5	I206 A7
2213 B7	3225 B8	5214 G9	I207 C7
2214 B6	3226 B9	5215 F10	I208 B7
2216 B6	3227 C8	5216 F10	I209 C8
2218 A7	3228 D2	5217 H7	I210 C8
2219 A7	3229 C9	5218 F2	I211 B8
2220 B7	3230 B9	6201 E4	I212 B9
2221 A7	3231 B9	6204 C11	I213 C10
2222 E5	3232 B9	6205 C11	I214 C10
2223 B8	3233 B9	6206 C12	I215 C10
2224 C8	3234 B9	7201-1 B1	I217 C11
2225 B10	3235 B9	7201-2 C2	I218 D3
2226 C10	3236 B9	7202-1 C2	I219 C5
2227 B11	3237 C9	7202-2 C3	I220 D5
2228 C5	3238 B10	7203-1 C3	I221 D5
2229 C5	3239 C10	7203-2 C3	I222 D5
2230 D4	3240 B10	7204-1 A4	I223 D5
2231 D5	3241 B10	7204-2 A3	I224 E5
2232 D5	3242 C10	7205-1 B4	I225 C10
2233 D5	3243 C10	7205-2 B4	I226 F8
2234 D4	3244 D2	7206 B6	I227 F6
2235 D4	3245 C10	7207 B12	I228 F7
2236 D5	3246 C11	7208 D2	I229 F7
2237 D5	3247 B11	7209 D2	I230 F7
2238 E5	3248 C11	7210 D3	I231 F7
2239 E5	3249 B11	7211 F4	I232 F8
2240 E5	3250 D2	7214 G3	I233 F8
2241 E5	3251 D3	7215 G4	I234 F8
2242 E5	3252 D3	7216-1 G3	I235 F8
2243 E5	3253 D3	7216-2 G3	I236 F8
2244 E5	3254 F3	7217 C6	I237 F8
2245 E5	3255 E2	7218 F11	I238 F9
2246 F5	3256 E2	7219 F2	I239 F9
2247 F6	3257 F3	7220 A11	I240 F10
2248 G6	3258 E2	7221 A12	I241 B10
2249 G6	3259 E2	F201 B2	I242 F4
2250 F7	3260 C3	F202 B2	I243 C4
2251 F7	3261 A12	F203 B3	I244 B7
2252 F7	3262 F3	F204 B3	I246 D2
2253 F7	3263 F3	F205 B6	I247 D4
2254 F7	3264 F4	F206 B6	I248 D4
2255 F7	3265 F4	F207 C7	I254 F6
2256 F8	3266 F4	F208 C7	I255 F6
2257 F8	3267 F4	F209 B7	I256 E7
2258 G5	3268 F5	F210 F2	I257 E7
2259 G8	3270 F7	F211 C9	I258 E7
2260 F8	3271 F7	F212 C8	I259 F8
2262 G8	3272 F8	F213 C10	I262 F8
2263 F8	3273 F8	F214 B10	I264 F9
2264 G8	3274 F8	F215 B10	I265 F10
2265 G8	3275 F9	F216 C10	I266 F10
2266 G8	3276 F9	F217 B11	I267 F11
2267 F8	3277 F10	F218 B11	I268 G11
2268 G8	3278 F11	F219 C12	I269 C11
2269 F9	3279 G11	F220 D3	I270 B11
2270 F9	3280 E4	F221 D3	I271 B10
2271 F9	3281 F8	F222 D5	I272 B10
2272 F9	3282 F3	F223 D5	I273 C9
2273 F10	3283 B6	F224 D5	I274 A9
2274 F10	3284 B6	F225 D5	I275 A9
2275 G9	3285 G6	F226 D5	I277 C8
2276 G10	3286 H6	F227 D4	I278 C8
2277 F10	3287 B7	F228 E5	I283 B6
2278 F11	3288 D2	F229 E5	I284 B6
2279 F11	3289 D2	F230 G4	I285 B6
2280 A3	3290 B6	F231 G4	I286 B6
2281 B3	3291 F2	F232 F5	I289 A3
2282 F10	3292 F2	F233 F5	I290 A4
2283 F10	3293 G2	F234 F5	I291 A4
2284 F10	3294 G2	F235 F5	I292 B3
2285 F6	3295 F6	F236 F6	I293 B3
2286 F7	3296 B5	F237 F6	I294 B3
2287 H7	3297 A11	F238 F6	I297 B8
2288 H6	3298 A12	F239 F6	I298 C7
2290 F3	3299 B10	F240 F6	
2291 F2	4204 C9	F241 G7	
2292 E11	4205 C9	F242 G7	
2293 C10	4206 F3	F243 G7	
3201 A3	4207 E2	F244 F8	
3202 A4	4208 E2	F245 F9	
3203 A4	4209 E3	F246 F10	
3204 B3	4211 A4	F247 D11	
3205 B4	4212 B4	F248 F8	
3206 B4	4216 B9	F249 E11	
3207 B6	4217 B9	F250 A7	
3208 B6	4218 B9	F251 G9	
3209 B6	4219 B9	F252 G9	
3210 B6	4220 A11	F253 G9	

SSB: Sync Interface

B3 SYNC INTERFACE

B3



B18
B15
B13

T

TO/FROM 1000 OF

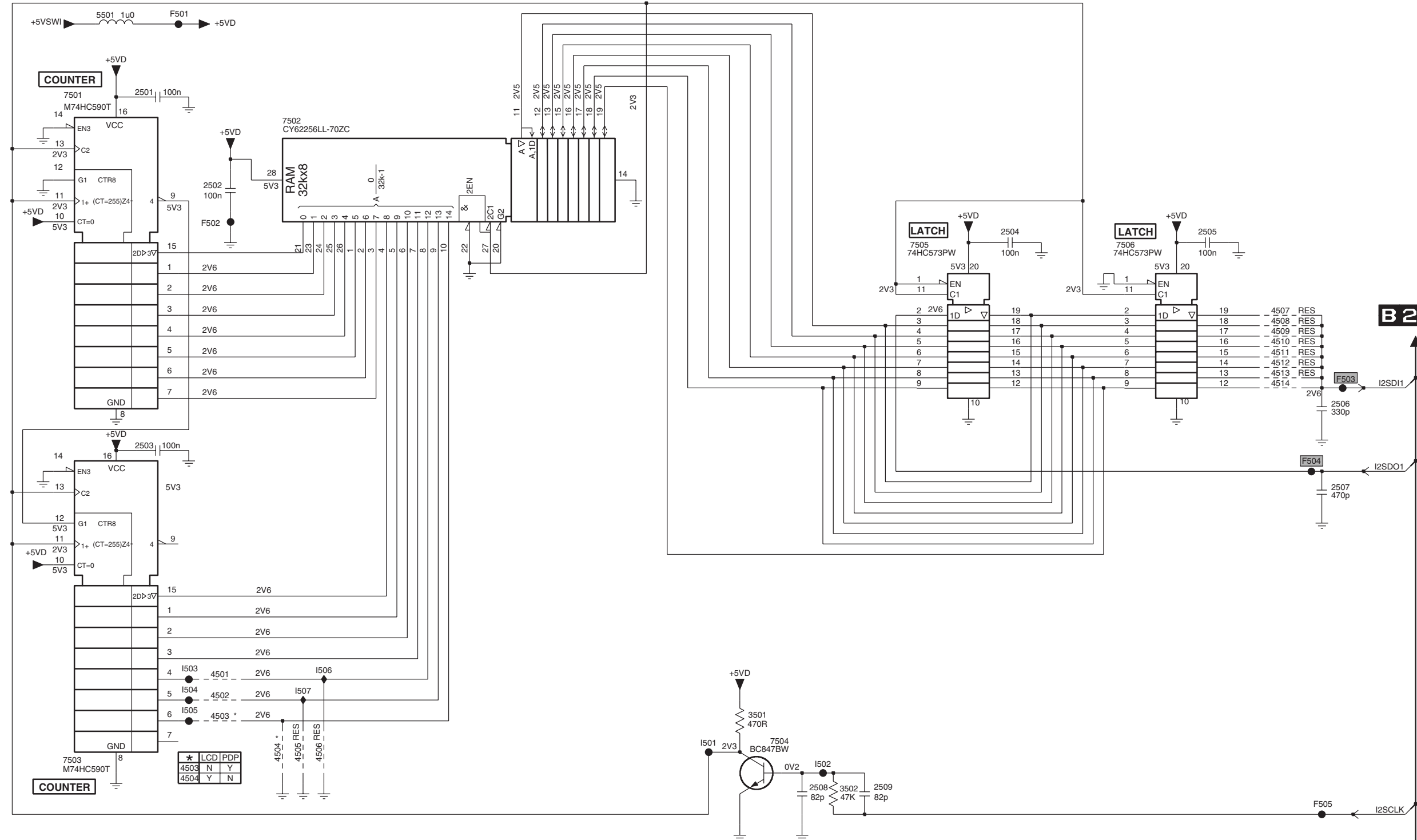
BM14B-SRSS-TB

- 1440 A9
- 1441 A9
- 1442 D9
- 2447 A8
- 2448 A8
- 2449 E4
- 3431 B2
- 3432 B3
- 3451 B5
- 3453 B6
- 3454 B7
- 3455 C6
- 3456 C7
- 3458 D2
- 3459 D4
- 3461 E2
- 3462 E4
- 3463 C3
- 4436 B6
- 4437 C6
- 4439 E1
- 4440 D2
- 4441 E2
- 5431 A8
- 6430 B3
- 6431 B3
- 7430 B2
- 7436-1 B6
- 7436-2 C6
- 7436-3 D2
- 7436-4 D3
- 7436-5 E3
- 7436-6 E3
- F404 D8
- F405 D8
- F406 E8
- F407 E8
- F408 E8
- F409 E8
- F410 E8
- F411 E8
- F412 E8
- I430 B3
- I440 C5
- I443 B5
- I449 A8
- I450 A8
- I451 A8
- I452 A8
- I453 B3
- I454 B2
- I455 E2

SSB: Audio Delay Line (PDP Only)

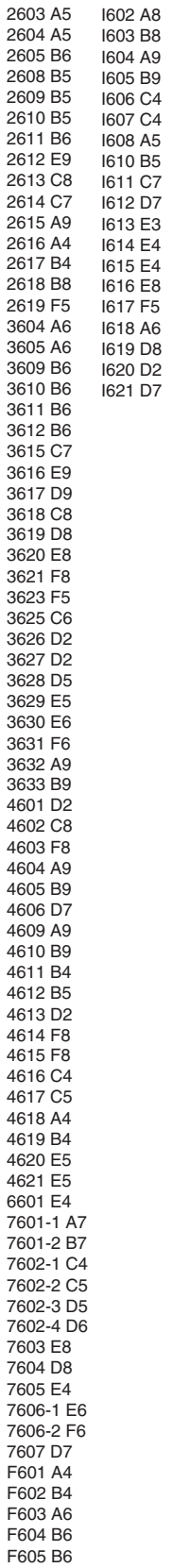
B4 AUDIO DELAY LINE (LIPSYNC) (FOR PDP SETS ONLY)

B4

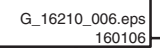


- 2501 A2
- 2502 B2
- 2503 D2
- 2504 B8
- 2505 B9
- 2506 C10
- 2507 D10
- 2508 F6
- 2509 F7
- 3501 F6
- 3502 F6
- 4501 E2
- 4502 F2
- 4503 F2
- 4504 F2
- 4505 F3
- 4506 F3
- 4507 C9
- 4508 C9
- 4509 C9
- 4510 C9
- 4511 C9
- 4512 C9
- 4513 C9
- 4514 C9
- 5501 A1
- 5501 A1
- 7502 B3
- 7503 F1
- 7504 F6
- 7505 B7
- 7506 B8
- F501 A2
- F502 B2
- F503 C10
- F504 D10
- F505 F10
- I501 F5
- I502 F6
- I503 E2
- I504 E2
- I505 F2
- I506 E3
- I507 E3

AUDIO PROCESSING



B6 DC-DC CONVERTER



SSB: Diversity Tables B1-B6

B01

Item nr.	EU non DVB	EU DVB	Description
1152	☒	☒	TUN V+U PLL IEC BGHIL B
	☒	☒	TUNER UV1318SD/A CP H N-4
3163	☒	☒	RST SM 0603 100R PM5 COL
3164	☒	☒	RST SM 0603 100R PM5 COL
5152	☒	☒	FXDIND SM 1008 1U PM5 COL R
	☒	☒	FXDIND SM 1008 6U8 PM5 COL R
5157	☐	☒	FXDIND 0603 100MHZ 600R COL R
5158	☐	☒	FXDIND 0603 100MHZ 600R COL R

B02

Item Nr.		/93 China	AP 10pg TXT	EU 10pg TXT	EU 10pg TXT DVB	EU 1000pg TXT	EU 1000pg TXT DVB	Description
2203	319803041090	☒	☒	☒	☒	☒	☒	ELCAP SM 16V 10U PM20 COL R
2244	319803571040	☒	☒	☒	☒	☒	☒	CER2 0402 Y5V 16V 100N COL
2245	319803571040	☐	☒	☒	☒	☒	☒	CER2 0402 Y5V 16V 100N COL
2246	319803571040	☐	☒	☒	☒	☒	☒	CER2 0402 Y5V 16V 100N COL
2280	202055200005	☐	☒	☒	☒	☒	☒	CER2 0603 X5R 6V3 4U7 PM10 R
2281	202055200005	☐	☒	☒	☒	☒	☒	CER2 0603 X5R 6V3 4U7 PM10 R
2289	319802131510	☐	☒	☒	☒	☒	☒	RST SM 0603 150R PM5 COL
2290	222224059872	☐	☒	☒	☒	☒	☒	CER2 0805 Y5V 10V 4U7 P8020 R
2291	319803571040	☐	☒	☒	☒	☒	☒	CER2 0402 Y5V 16V 100N COL
3250	319803101010	☒	☒	☒	☒	☒	☒	RST SM 0402 100R PM5 COL
3251	319803101010	☒	☒	☒	☒	☒	☒	RST SM 0402 100R PM5 COL
3252	319803101010	☐	☒	☒	☒	☒	☒	RST SM 0402 100R PM5 COL
3253	319803101010	☒	☒	☒	☒	☒	☒	RST SM 0402 100R PM5 COL
3255	319803190010	☒	☒	☒	☒	☒	☒	RST SM 0402 JUMP. 0R05 COL
3256	319803190010	☒	☒	☒	☒	☒	☒	RST SM 0402 JUMP. 0R05 COL
3257	319803190010	☒	☒	☒	☒	☒	☒	RST SM 0402 JUMP. 0R05 COL
3258	319803101020	☒	☒	☒	☒	☒	☒	RST SM 0402 1K PM5 COL
3259	319803101020	☒	☒	☒	☒	☒	☒	RST SM 0402 1K PM5 COL
3260	319803101020	☒	☒	☒	☒	☒	☒	RST SM 0402 1K PM5 COL
3282	319802131510	☐	☒	☒	☒	☒	☒	RST SM 0603 150R PM5 COL
3294	319803104730	☐	☒	☒	☒	☒	☒	RST SM 0402 47K PM5 COL
3296	319803101010	☐	☒	☒	☒	☒	☒	RST SM 0402 100R PM5 COL
4206	319802190020	☐	☒	☒	☒	☒	☒	RST SM 0805 JUMP. 0R05 COL R
4218	319803190010	☐	☒	☒	☒	☒	☒	RST SM 0402 JUMP. 0R05 COL
4219	319803190010	☐	☒	☒	☒	☒	☒	RST SM 0402 JUMP. 0R05 COL
5218	242254945333	☐	☒	☒	☒	☒	☒	IND FXD 1206 EMI 100MHZ 120R R
6206	319801010660	☐	☒	☒	☒	☒	☒	DIO SIG SM BAT54 SOD323 COL R
7208	319801042310	☒	☒	☒	☒	☒	☒	TRA SIG SM BC847BW (COL) R
7209	319801042310	☒	☒	☒	☒	☒	☒	TRA SIG SM BC847BW (COL) R
7210	319801042310	☒	☒	☒	☒	☒	☒	TRA SIG SM BC847BW (COL) R
7217	935280215557	☐	☒	☒	☒	☒	☒	IC SM TDA15031H/N1C91 (PHSE)Y
	935280366557	☐	☒	☒	☒	☒	☒	IC SM TDA15021H/N1C91 (PHSE) Y
	935280367557	☒	☒	☒	☒	☒	☒	IC SM TDA15011H/N1CD0 (PHSE) Y
7219	319801071090	☐	☒	☒	☒	☒	☒	IC SM 74HC4053D (COL) R

B03

Item Nr.		10pg TXT (w/o OTC)	1000pg TXT (with OTC)	DVB 10pg TXT (w/o OTC)	DVB 1000pg TXT (with OTC)	Description
1442	242202519085	☐	☒	☒	☒	CON V 14P M 1.00 SM SR R
3432	319803102720	☐	☒	☒	☒	RST SM 0402 2K7 PM5 COL
6430	934054842115	☒	☒	☒	☒	DIO REG SM PDZ2.4B (PHSE) R
6431	932220595685	☒	☒	☒	☒	DIO SIG SM 1N4148WS-V (VISH) R

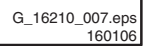
B05

Item Nr.		LCD 37" - 50"	LCD 26" - 32"	PDP 42" - 50"	Decription
2612	319801741050	☒	☒	☒	CER2 0603 Y5V 10V 1U COL
2613	319801741050	☐	☒	☒	CER2 0603 Y5V 10V 1U COL
2616	202055200035	☐	☒	☒	CER2 0603 X5R 6V3 2U2 PM10 R
2617	202055200035	☐	☒	☒	CER2 0603 X5R 6V3 2U2 PM10 R
2619	319803024790	☐	☒	☒	ELCAP SM 6V3 47U PM20 COL R
3615	319803101030	☐	☒	☒	RST SM 0402 10K PM5 COL
3616	319803101020	☒	☒	☒	RST SM 0402 1K PM5 COL
	319803190010	☐	☒	☒	RST SM 0402 JUMP. 0R05 COL
3617	319803101020	☒	☒	☒	RST SM 0402 1K PM5 COL
3618	319803102230	☐	☒	☒	RST SM 0402 22K PM5 COL
3619	319803101030	☒	☒	☒	RST SM 0402 10K PM5 COL
3620	319803101030	☒	☒	☒	RST SM 0402 10K PM5 COL
3623	319803104730	☐	☒	☒	RST SM 0402 47K PM5 COL
3625	319803103320	☐	☒	☒	RST SM 0402 3K3 PM5 COL
3627	319803102230	☐	☒	☒	RST SM 0402 22K PM5 COL
3628	319803101030	☒	☒	☒	RST SM 0402 10K PM5 COL
3629	319803102230	☐	☒	☒	RST SM 0402 22K PM5 COL
3630	319803102220	☒	☒	☒	RST SM 0402 2K2 PM5 COL
	319803103310	☐	☒	☒	RST SM 0402 330R PM5 COL
3631	319803102220	☒	☒	☒	RST SM 0402 2K2 PM5 COL
	319803103310	☐	☒	☒	RST SM 0402 330R PM5 COL
3632	232270570569	☒	☒	☒	RST SM 0402 RC31 56R PM5 R
3633	232270570569	☒	☒	☒	RST SM 0402 RC31 56R PM5 R
4601	319802190030	☒	☒	☒	RST SM 0603 JUMP. 0R05 COL
4602	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4603	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4606	319802190030	☒	☒	☒	RST SM 0603 JUMP. 0R05 COL
4609	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4610	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4611	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4612	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4613	319802190030	☐	☒	☒	RST SM 0603 JUMP. 0R05 COL
4614	319802190030	☒	☒	☒	RST SM 0603 JUMP. 0R05 COL
4615	319802190030	☒	☒	☒	RST SM 0603 JUMP. 0R05 COL
4618	319802190030	☒	☒	☒	RST SM 0603 JUMP. 0R05 COL
4619	319802190030	☒	☐	☒	RST SM 0603 JUMP. 0R05 COL
7603	319801042310	☒	☒	☒	TRA SIG SM BC847BW (COL) R
7604	319801042310	☒	☐	☒	TRA SIG SM BC847BW (COL) R
7607	319801042310	☐	☒	☐	TRA SIG SM BC847BW (COL) R

B06

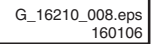
Item Nr.		PDP - 42" - 50"	LCD 26" - 32"	LCD 37" - 42"	Description
2701	319803401010				CER1 0402 NP0 50V 100P COL
2702	319803571040				CER2 0402 Y5V 16V 100N COL
2706	319803041090				ELCAP SM 16V 10U PM20 COL R
2709	319803044790				ELCAP SM 16V 47U PM20 COL R
2710	202055200211				CER2 1210 X5R 16V 22U PM10 R
2711	202055200211				CER2 1210 X5R 16V 22U PM10 R
2717	319803571040				CER2 0402 Y5V 16V 100N COL
2718	319803571040				CER2 0402 Y5V 16V 100N COL
2719	319803571040				CER2 0402 Y5V 16V 100N COL
2720	319803501020				CER2 0402 X7R 50V 1N COL
2721	319803571040				CER2 0402 Y5V 16V 100N COL
2722	319803501020				CER2 0402 X7R 50V 1N COL
2723	319803574730				CER2 0402 Y5V 16V 47N COL
2724	319801631020				CER1 0603 NP0 25V 1N COL
2725	319801631020				CER1 0603 NP0 25V 1N COL
2726	202002100097				ELCAP SM SGV 16V 470U PM20 R
2727	319803521030				CER2 0402 X7R 16V 10N COL
2741	319801732240				CER2 0603 X7R 10V 220N COL
	222224059872				CER2 0805 Y5V 10V 4U7 P8020 R
2752	319803044790				ELCAP SM 16V 47U PM20 COL R
3701	319803101030				RST SM 0402 10K PM5 COL
3702	319803101030				RST SM 0402 10K PM5 COL
3709	319803106820				RST SM 0402 6K8 PM5 COL
3718	232275061009				RST SM FUSE 1206 10R PM5 R
3719	319803106810				RST SM 0402 680R PM5 COL
3720	319802132280				RST SM 0603 2R2 PM5 COL
3721	319802132280				RST SM 0603 2R2 PM5 COL
3722	319803102720				RST SM 0402 2K7 PM5 COL
3723	319802151090				RST SM 0805 10R PM5 COL R
3724	319803101530				RST SM 0402 15K PM5 COL
3725	232270463302				RST SM 0603 RC22H 3K3 PM1 R
3726	319803101220				RST SM 0402 1K2 PM5 COL
3727	232270461002				RST SM 0603 RC22H 1K PM1 R
3740	319803101520				RST SM 0402 1K5 PM5 COL
3741	319803101520				RST SM 0402 1K5 PM5 COL
3742	319803101530				RST SM 0402 15K PM5 COL
3743	319803102230				RST SM 0402 22K PM5 COL
3750	319803102230				RST SM 0402 22K PM5 COL
3755	319803101030				RST SM 0402 10K PM5 COL
3758	319803101530				RST SM 0402 15K PM5 COL
3759	319803101230				RST SM 0402 12K PM5 COL
5700	242254945333				IND FXD 1206 EMI 100MHZ 120R R
5704	242254945333				IND FXD 1206 EMI 100MHZ 120R R
5709	242253594134				IND FXD SM 7032 10U PM20 R
5713	242253601218				IND FXD SM DRH104RNP 3U3 PM30
5717	242253600671				IND FXD SM 12575 10U PM20 R
5754	242253594134				IND FXD SM 7032 10U PM20 R
5756	242254945333				IND FXD 1206 EMI 100MHZ 120R R
5757	242254945333				IND FXD 1206 EMI 100MHZ 120R R
6717	319801010630				DIO SIG SM BAS316 (COL) R
6718	319801010720				DIO REC SS24 COL R
6740	934054857115				DIO REG SM PD28.2B (PHSE) R
6751	319801010710				DIO REC SS14 COL R
7708	932213916668				IC SM LF33CPT (ST00) R
7710	932218277668				IC SM L6910 (ST00) R
7711	932216070668				FET POW SM SI4936ADY-E3(VISH)R
7741	319801042310				TRA SIG SM BC847BW (COL) R
7742	319801042310				TRA SIG SM BC847BW (COL) R
7754	932221400668				FET POW SM SI2301BDS-E3(VISH)R
7755	319801044110				TRA SIG SM PDTTC114ET (COL) R
7756	319801044110				TRA SIG SM PDTTC114ET (COL) R
7758	932221214668				FET POW SM SI4423DY-E3 (VISH)R

B7 SCALER



1801 B15	7801-5 E12
1802 F15	7801-6 F15
2800 A1	7801-9 G11
2801 A1	F800 A1
2802 A2	F801 C3
2803 A2	F802 A10
2804 A2	F803 G15
2805 A2	F804 G15
2806 A2	I800 G3
2807 A3	I801 B13
2808 A3	I802 F10
2809 A3	I803 F10
2810 A3	I804 E13
2811 A4	I805 F13
2812 A4	I806 F13
2813 C3	I807 F13
2814 C3	I808 F13
2815 A10	I809 G13
2816 A10	I810 H13
2817 A10	I811 G15
2818 A10	I812 G3
2819 A10	I813 A1
2820 A12	I815 G3
2821 A13	I816 G3
2822 A13	I817 H6
2823 B10	I818 G3
2824 B10	I819 I10
3800 B3	I820 I10
3801-1 C2	I822 H13
3801-2 C2	I823 G6
3801-3 C2	I824 I10
3801-4 C2	
3802-1 D2	
3802-2 C2	
3802-3 C2	
3802-4 C2	
3803-1 D2	
3803-2 D2	
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3808-3 F2	
3808-4 F2	
3809-1 B7	
3809-2 B7	
3809-3 B7	
3809-4 B7	
3810-1 C7	
3810-2 C7	
3810-3 C7	
3810-4 C7	
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3811-3 C7	
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3812-1 C7	
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3813-4 D7	
3814 D7	
3815 D7	
3816 E7	
3817 E6	
3818 E6	
3819 F3	
3820 G2	
3822 G6	
3823 G6	
3824 B13	
3825-1 F10	
3825-2 F10	
3825-3 F10	
3825-4 F10	
3826-1 F10	
3826-2 F10	
3826-3 F10	
3826-4 F10	
3827 F13	
3828 F13	
3829 F13	
3830 H10	
3831 I9	
3832 I9	
3834 G13	
3835 H13	
3836 H13	
3837 G14	
3838 G14	
3839 G3	
3840 I3	
3841 H15	
3842 G10	
4801 H6	
7801-11 A11	
7801-12 B4	
7801-4 C12	

B8 SCALER



SSB: Scaler Interface

B9 SCALER INTERFACE

B9

A

B

C

D

E

F

A

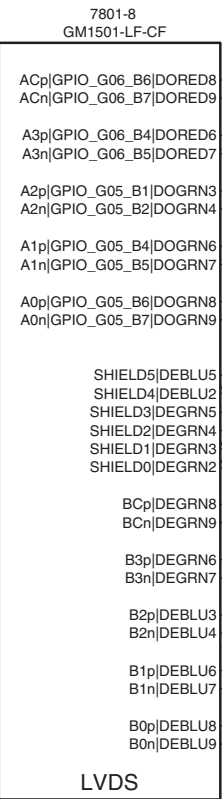
B

C

D

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F



B 2 0

B 7

B 2 0

B 1 6

B 2 0

B 2

FOR PDP ONLY

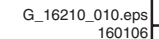
FOR LARGE SCREEN 37"~50"

FOR PDP DVB ONLY

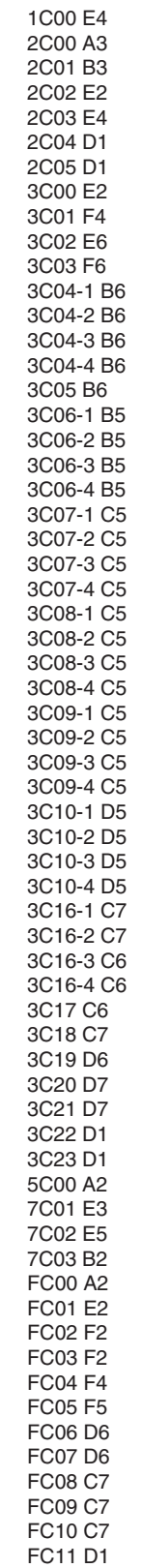
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3A05	-	-	-	-
3A04	1K	1K	-	-
7A01	Y	Y	-	-
4A03	-	-	Y	Y
3A06	10K	0R	10K	0R
2A03	1u	-	1u	-

2A00 E3
2A01 F2
2A02 F2
2A03 C7
2A12 E6
2A13 D8
2A14 F8
3A00 E2
3A01 E2
3A02 C5
3A03 C6
3A04 C6
3A05 C6
3A06 C7
3A07 E2
3A08 E2
3A10 E6
3A11 D7
3A13 D8
3A14 D9
3A15 F9
3A16 F8
4A00 F3
4A01 F3
4A02 B6
4A03 D6
4A04 F4
4A05 F6
4A06 F8
5A00 E3
6A01 E9
7801-8 A2
7A00 E4
7A01 C6
7A02 E6
7A03 E8
7A04 F8
IA00 C7
IA03 E6
IA05 B8
IA06 C7
IA07 B6
IA08 E3
IA09 E3
IA10 F8

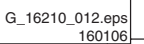
B10 SDRAM



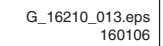
B11



D00 A10	D210 B2	D15 B2	D22 E2	D230 D1	D236 E2	D243 G2	D248 I3	D253 G10	D258 I11	3D03 B10	3D08 A10	3D15-3 C14	3D16-4 C14	3D18 F10	3D20-4 G8	3D22 E14	4D02 G8	5000 F1	5D05 H2	7D03-1 A11	FD01 B9	FD06 E15	FD11 I2	FD17 A9	ID10 G10	ID19 I14
D001 B10	D210 B2	D236 E2	D232 E2	D231 D1	D237 E2	D244 G2	D249 H5	D254 G11	D258 I11	3D05 I4	3D10 B10	3D15-4 C14	3D17-1 B14	3D19 F9	3D21-1 B14	3D23 D14	4D03 H8	5001 G1	5D06 F1	7D03-2 G6	FD02 B9	FD07 G1	FD12 F1	ID00 H1	ID11 H10	ID20 A9
D002 F2	D212 B1	D217 R2	D224 E2	D232 E1	D238 E2	D245 H1	D250 G9	D255 G11	3D00 A9	3D06 I4	3D11 E3	3D16-1 D14	3D17-2 B14	3D20-1 G8	3D21-2 B14	3D24 H11	4D04 I4	5D02 G1	7D00 A8	7D03-3 A5	FD03 C9	FD08 G1	FD13 G9	ID01 H2	ID13 E15	ID22 E10
D008 B1	D213 B1	D236 E2	D225 E2	D234 E2	D239 E2	D246 H2	D251 G9	D256 H10	3D01 A10	3D07 E10	3D15-1 C14	3D16-2 D14	3D17-3 B14	3D20-2 H8	3D21-3 B14	3D26 H11	4D05 I4	5D03 H2	7D01 B8	7D04 G9	FD04 C9	FD09 G1	FD14 H2	ID08 H10	ID14 H15	ID24 I5
D209 B1	D214 B2	D221 E2	D229 C1	D235 E2	D242 G2	D247 I2	D252 G10	D257 H10	3D02 B9	3D08 E10	3D15-2 C14	3D16-3 D14	3D17-4 A14	3D20-3 H8	3D21-4 B14	3D27 H4	4D06 I4	5D04 I2	7D02 H1	7D05 H4	FD05 E15	FD10 I2	FD15 G9	ID09 H11	ID18 H14	ID25 I4

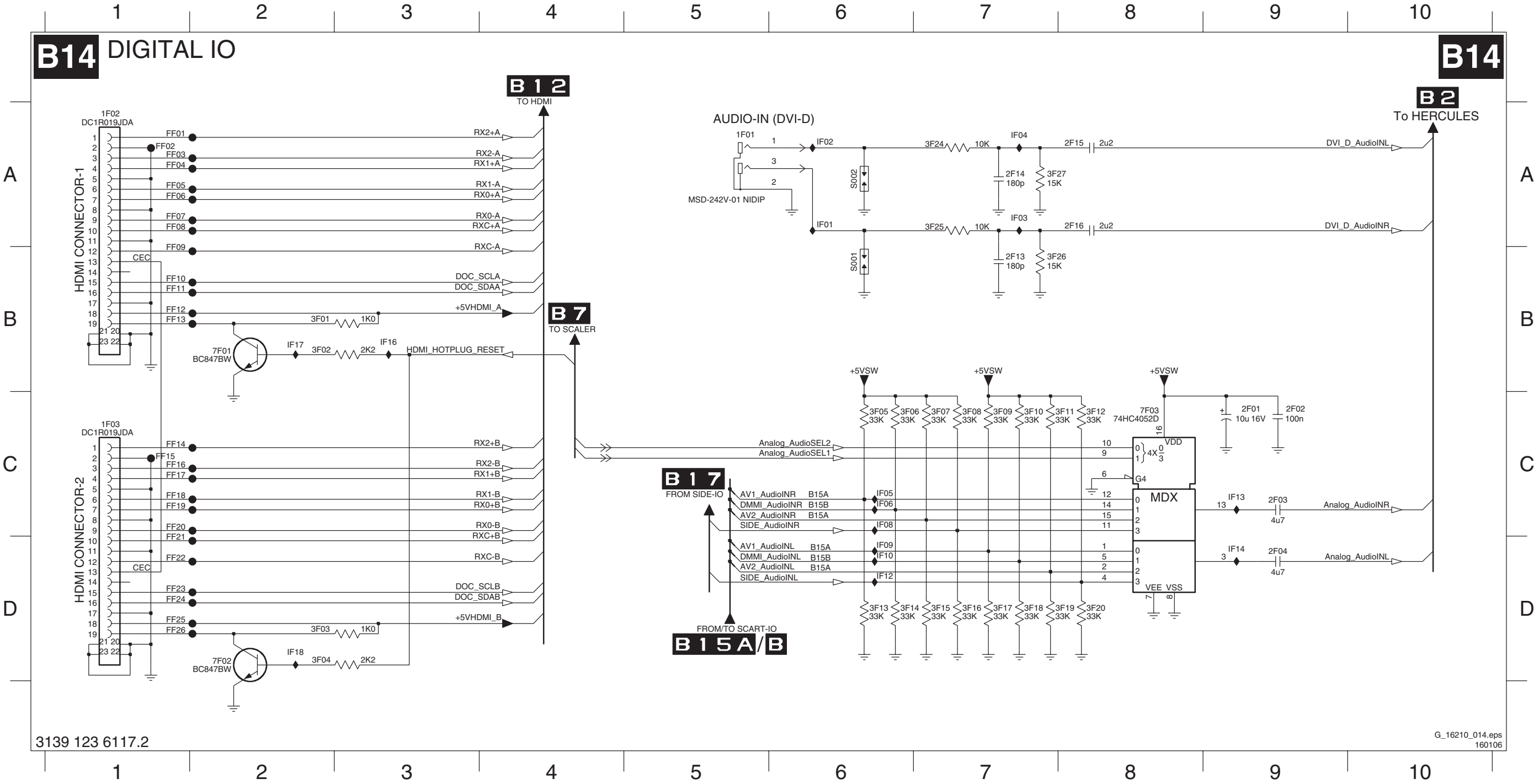


B13 MUX-SYNC INTERFACE



SSB: Digital I/O

1F01 A5	2F01 C9	2F04 D9	2F15 A8	3F02 B2	3F05 C6	3F08 C7	3F11 C8	3F14 D6	3F17 D7	3F20 D8	3F26 A7	7F02 D2	FF02 A1	FF05 A1	FF08 A1	FF11 B1	FF14 C1	FF17 C1	FF20 C1	FF23 D1	FF26 D1	IF03 A7	IF06 C6	IF10 D6	IF14 D9	IF18 D2
1F02 A1	2F02 C9	2F13 A7	2F16 A8	3F03 D2	3F06 C6	3F09 C7	3F12 C8	3F15 D7	3F18 D7	3F24 A7	3F27 A7	7F03 C8	FF03 A1	FF06 A1	FF09 B1	FF12 B1	FF15 C1	FF18 C1	FF21 D1	FF24 D1	IF01 A6	IF04 A7	IF08 C6	IF12 D6	IF16 B3	S001 A6
1F03 C1	2F03 C9	2F14 A7	3F01 B2	3F04 D2	3F07 C7	3F10 C7	3F13 D6	3F16 D7	3F19 D8	3F25 A7	7F01 B2	FF01 A1	FF04 A1	FF07 A1	FF10 B1	FF13 B1	FF16 C1	FF19 C1	FF22 D1	FF25 D1	IF02 A6	IF05 C6	IF09 D6	IF13 C9	IF17 B2	S002 B6



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SCART ANALOG-IO

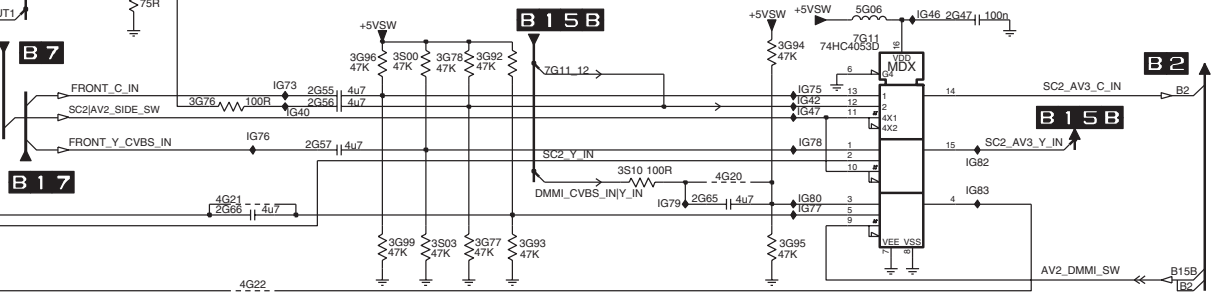
B15A



B 1 5 B

B 7

B 1 7



B2

5 B

100

10001-B2	F001 B2
10001-E2	F002 B2
1001-F2	F003 B2
1002-B2	F004 B2
1002-G3	F005 K3
1002-J3	F006 C2
1001-A3	F007 C2
1003-B2	F008 D2
1003-A4	F011 D3
1004-B4	F012 D3
2005-A5	F013 E5
2006-B5	F014 E5
2007-C3	F015 E5
2008-C4	F016 G2
2009-B5	F017 G2
2010-B5	F018 G2
2111-B5	F019 G3
2121-B5	F020 H3
2013-D5	F021 H2
2014-D5	F022 H2
2015-E4	F024 H2
2016-K4	F026 I2
2017-K5	F027 I2
2019-B3	F028 G2
2020-G5	I000 K4
2020-G5	I001 B4
2022-G5	I002 A6
2022-G5	I003 B6
2023-G5	I004 B6
2024-G5	I005 B6
2025-H5	I006 C5
2026-H5	I007 D4
2027-H4	I008 G5
2028-H5	I009 D4
2029-E3	I010 D4
2030-F3	I011 E4
2031-F3	I012 E4
2043-K4	I013 G5
2044-F4	I014 G5
2047-H4	I015 G5
2054-K5	I016 G5
2055-I0	I017 G6
2056-I0	I018 G6
2057-I0	I019 H6
2060-G5	I020 D3
2065-J12	I021 H5
2066-J9	I022 H5
2067-H5	I023 D5
2068-H5	I024 D5
3001-A3	I026 J6
3002-A4	I027 K4
3003-A4	I028 K7
3004-B4	I029 E5
3005-B4	I034 E5
3006-C5	I035 E6
3007-C5	I036 F5
3008-C5	I037 F5
3009-D3	I040-I0
3010-D3	I042-J3
3011-D3	I044 H4
3012-E3	I045 H4
3014-E4	I046 K4
3015-E5	I049 K4
3016-E4	I051 E4
3017-E5	I052-J7
3018-E5	I073-J0
3019-K4	I075-J3
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3022-G3	I078-J3
3023-G3	I079-J12
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3025-G5	I082-J5
3026-G4	I083-J4
3027-H4	S000-A3
3028-K4	S001-C4
3029-J4	S004-C2
3030-J3	S005-C2
3031-J5	S006-D3
3032-J5	S007-E3
3033-J5	S008-D3
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3035-J5	S010-E3
3036-J6	S011-E3
3037-K6	S012-E4
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3039-D3	S014-G3
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3059-H4	S016-H4
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3073-E3	S018-I3
3074-F3	S019-I3
3075-F3	S020-I3
3076-J9	S021-J4
3077-K11	S022-J4
3078-H11	S023-J4
3079-K11	S024-J4
3089-I13	S025-K3
3090-I13	S026-H2
3095-K3	S027-I2
3096-K3	S028-I2
3099-K11	S029-F3
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6004-E4	
6005-E4	
6006-H3	
6007-H3	
6008-H4	
6009-H4	
6010-K3	
6014-I3	
6015-I12	
6016-I3	
6017-J3	
6018-I4	
6019-J4	
6021-J4	
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7002-E5	
7011-I4	
F000-A2	

SSB: DMMI

B15B DMMI

B15B

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B7
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B2 B13
B3 B17

B15A

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B15A

B15A

DMMI CONNECTOR (TO BE USED IN DVB SETS)

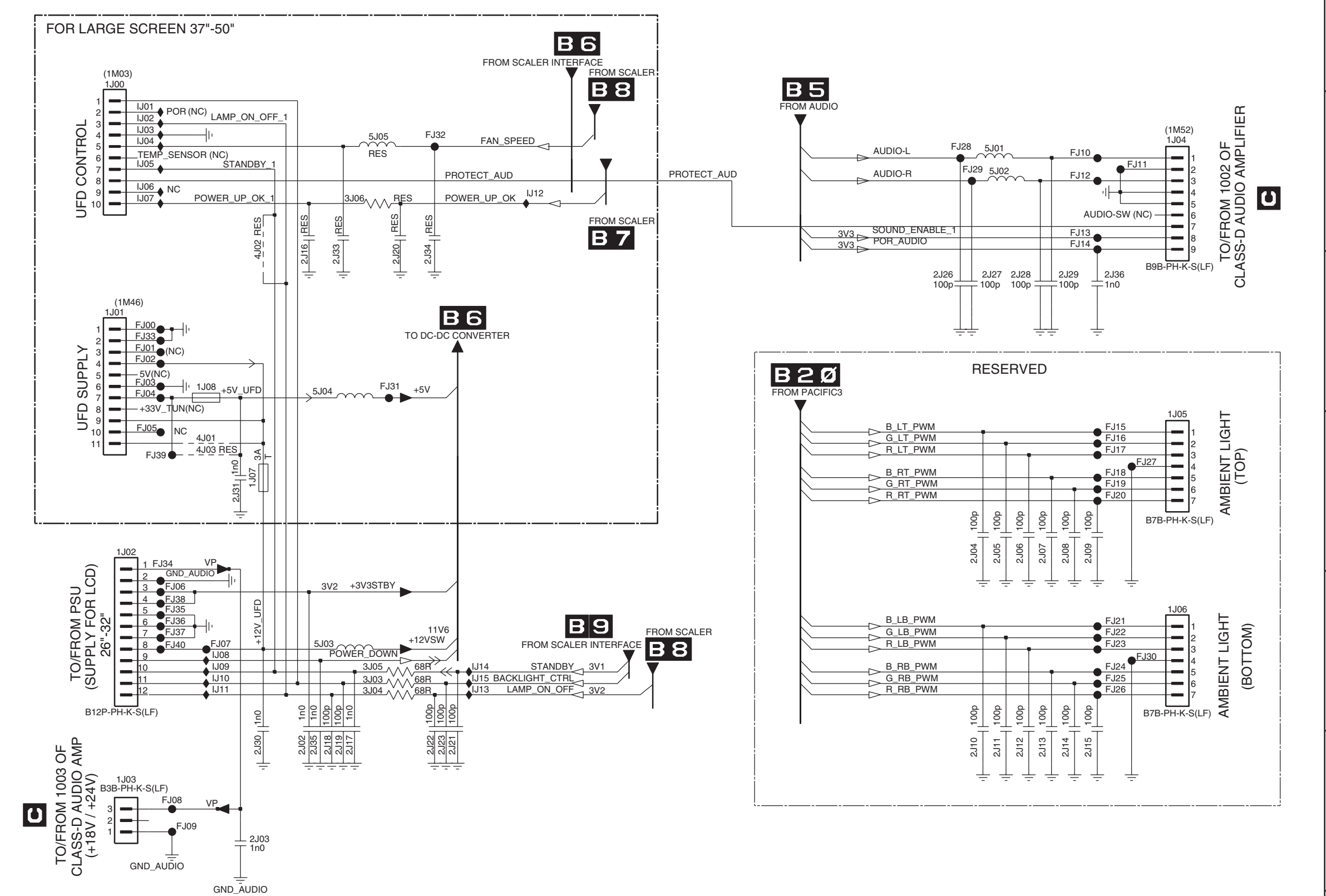
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| 2G32 F10 | 3S36 F4 |
| 2G34 A5 | 4G04 F8 |
| 2G35 A5 | 4G07 D5 |
| 2G36 B4 | 4G08 D5 |
| 2G37 B4 | 4G09 D5 |
| 2G38 B8 | 4G14 A4 |
| 2G39 A8 | 4G15 B4 |
| 2G40 A8 | 4G16 B9 |
| 2G41 B8 | 4G17 A9 |
| 2G45 D6 | 4G19 D5 |
| 2G46 E7 | 4G24 E8 |
| 2G48 F5 | 4G25 E8 |
| 2G49 G5 | 4G26 E8 |
| 2G50 F9 | 4G27 E8 |
| 2G51 F9 | 4G28 D9 |
| 2G52 D4 | 4G29 G3 |
| 2G53 D5 | 4G30 G4 |
| 2G58 E5 | 4G31 F12 |
| 2G61 F10 | 5G05 A4 |
| 2G62 C3 | 6G11 E10 |
| 2G63 C3 | 6G13 G9 |
| 2G67 E8 | 7G04 F6 |
| 2G69 E6 | 7G05 G6 |
| 2G72 F4 | 7G06 E7 |
| 3G40 F5 | 7G07 E5 |
| 3G41 G5 | 7G08 E11 |
| 3G42 F5 | 7G09 A7 |
| 3G43 F5 | 7G10 F9 |
| 3G44 F6 | 7G12 F2 |
| 3G45 G6 | 7G13 G4 |
| 3G46 G6 | FG32 C7 |
| 3G47 G6 | FG33 C7 |
| 3G48 F7 | FG34 C7 |
| 3G49 G6 | FG35 C5 |
| 3G50 F7 | FG36 C5 |
| 3G51 G6 | FG37 D5 |
| 3G52 F9 | FG38 D7 |
| 3G53 F10 | FG39 D7 |
| 3G54 F10 | FG40 D6 |
| 3G55 G10 | FG41 D7 |
| 3G56 F11 | FG42 D5 |
| 3G57 G10 | FG43 D7 |
| 3G60 A5 | FG44 D7 |
| 3G61 A5 | FG45 D7 |
| 3G62 A5 | FG47 E7 |
| 3G63 A4 | FG48 E7 |
| 3G64 B4 | FG49 E7 |
| 3G65 B5 | FG51 E7 |
| 3G66 B5 | FG53 E7 |
| 3G67 A7 | FG54 E7 |
| 3G68 A8 | FG56 E7 |
| 3G69 A8 | IG28 A5 |
| 3G70 F10 | IG29 A6 |
| 3G71 B8 | IG30 B9 |
| 3G79 G10 | IG32 G10 |
| 3G80 F9 | IG38 F5 |
| 3G81 D5 | IG39 F6 |
| 3G82 D5 | IG41 F6 |
| 3G83 C5 | IG43 G5 |
| 3G84 C5 | IG44 G5 |
| 3G85 B8 | IG45 G6 |
| 3G86 B8 | IG53 A7 |
| 3G87 B8 | IG54 A9 |
| 3G88 D8 | IG55 B9 |
| 3G89 B7 | IG56 B7 |
| 3G90 D8 | IG57 E10 |
| 3G91 D8 | IG58 E10 |
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| 3S11 E3 | IG69 B7 |
| 3S12 E4 | IG70 G7 |
| 3S13 E4 | IG71 F9 |
| 3S14 E4 | IG72 F10 |
| 3S15 E3 | IG74 F11 |
| 3S16 F3 | |
| 3S17 F4 | |
| 3S18 F4 | |
| 3S19 F4 | |
| 3S20 F3 | |
| 3S21 D4 | |
| 3S22 D4 | |
| 3S23 D8 | |
| 3S24 D7 | |
| 3S25 D7 | |
| 3S26 D7 | |
| 3S28 D8 | |
| 3S29 D8 | |
| 3S30 E10 | |
| 3S31 F3 | |
| 3S32 F2 | |
| 3S33 G4 | |

SSB: Top Connectors

B16 TOP CONNECTORS



3139 123 6117.2

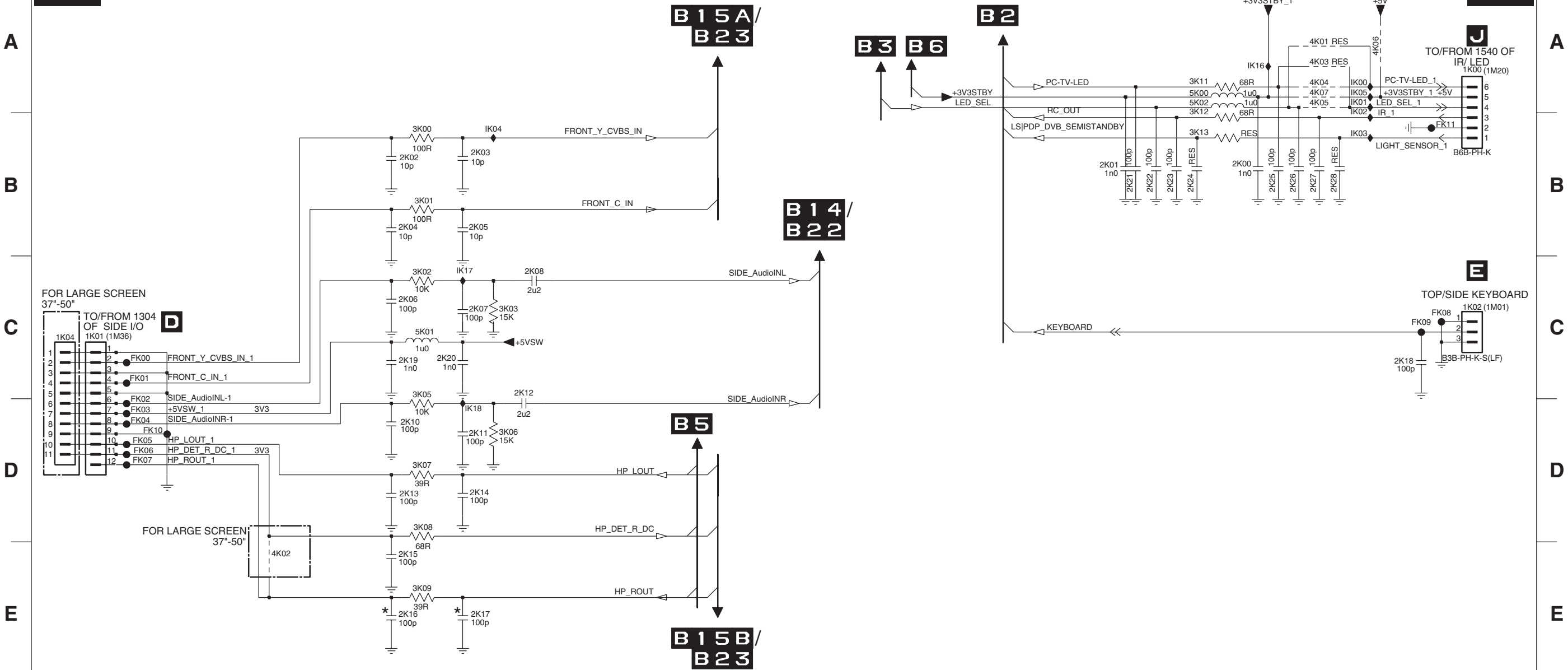
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- | | |
|---------|---------|
| 1J00 A1 | FJ23 E7 |
| 1J01 C1 | FJ24 E7 |
| 1J02 D1 | FJ25 E7 |
| 1J03 F1 | FJ26 E7 |
| 1J04 B8 | FJ27 D8 |
| 1J05 D8 | FJ28 B6 |
| 1J06 E8 | FJ29 B6 |
| 1J07 D2 | FJ30 E8 |
| 1J08 C2 | FJ31 C3 |
| 2J02 F2 | FJ32 B3 |
| 2J03 F2 | FJ33 C1 |
| 2J04 D6 | FJ34 D1 |
| 2J05 D7 | FJ35 E1 |
| 2J06 D7 | FJ36 E1 |
| 2J07 D7 | FJ37 E1 |
| 2J08 D7 | FJ38 E1 |
| 2J09 D7 | FJ39 D1 |
| 2J10 F6 | FJ40 E1 |
| 2J11 F7 | IJ01 B1 |
| 2J12 F7 | IJ02 B1 |
| 2J13 F7 | IJ03 B1 |
| 2J14 F7 | IJ04 B1 |
| 2J15 F7 | IJ05 B1 |
| 2J16 C2 | IJ06 B1 |
| 2J17 F3 | IJ07 B1 |
| 2J18 F2 | IJ08 E2 |
| 2J19 F3 | IJ09 E2 |
| 2J20 C3 | IJ10 E2 |
| 2J21 F3 | IJ11 E2 |
| 2J22 F3 | IJ12 B4 |
| 2J23 F3 | IJ13 E3 |
| 2J26 C6 | IJ14 E3 |
| 2J27 C7 | IJ15 E3 |
| 2J28 C7 | |
| 2J29 C7 | |
| 2J30 F2 | |
| 2J31 D2 | |
| 2J33 C2 | |
| 2J34 C3 | |
| 2J35 F2 | |
| 2J36 C7 | |
| 3J03 E3 | |
| 3J04 E3 | |
| 3J05 E3 | |
| 3J06 B3 | |
| 4J01 D2 | |
| 4J02 B2 | |
| 4J03 D2 | |
| 5J01 B7 | |
| 5J02 B7 | |
| 5J03 E2 | |
| 5J04 C2 | |
| 5J05 B3 | |
| FJ00 C1 | |
| FJ01 C1 | |
| FJ02 C1 | |
| FJ03 C1 | |
| FJ04 C1 | |
| FJ05 D1 | |
| FJ06 E1 | |
| FJ07 E2 | |
| FJ08 F1 | |
| FJ09 F2 | |
| FJ10 B7 | |
| FJ11 B7 | |
| FJ12 B7 | |
| FJ13 B7 | |
| FJ14 B7 | |
| FJ15 D7 | |
| FJ16 D7 | |
| FJ17 D7 | |
| FJ18 D7 | |
| FJ19 D7 | |
| FJ20 D7 | |
| FJ21 E7 | |
| FJ22 E7 | |

SSB: Side Connectors

1K00 A10	1K04 C1	2K02 B3	2K05 B3	2K08 C4	2K12 C4	2K15 E3	2K18 C10	2K21 B8	2K24 B8	2K27 B9	3K01 B3	3K05 C3	3K08 D3	3K12 B8	4K02 E2	4K05 A9	5K00 A8	FK00 C1	FK03 D1	FK06 D1	FK09 C10	IK00 A10	IK03 B10	IK16 A9
1K01 C1	2K00 B9	2K03 B3	2K06 C3	2K10 D3	2K13 D3	2K16 E3	2K19 C3	2K22 B8	2K25 B9	2K28 B9	3K02 C3	3K06 D4	3K09 E3	3K13 B8	4K03 A9	4K06 A10	5K01 C3	FK01 C1	FK04 D1	FK07 D1	FK10 D1	IK01 A10	IK04 B3	IK17 C3
1K02 C10	2K01 B8	2K04 B3	2K07 C3	2K11 D3	2K14 D3	2K17 E3	2K20 C3	2K23 B8	2K26 B9	3K00 B3	3K03 C4	3K07 D3	3K11 A8	4K01 A9	4K04 A9	4K07 A9	5K02 A8	FK02 D1	FK05 D1	FK08 C10	FK11 B10	IK02 A10	IK05 A10	IK18 D3

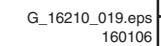
B17 SIDE CONNECTORS



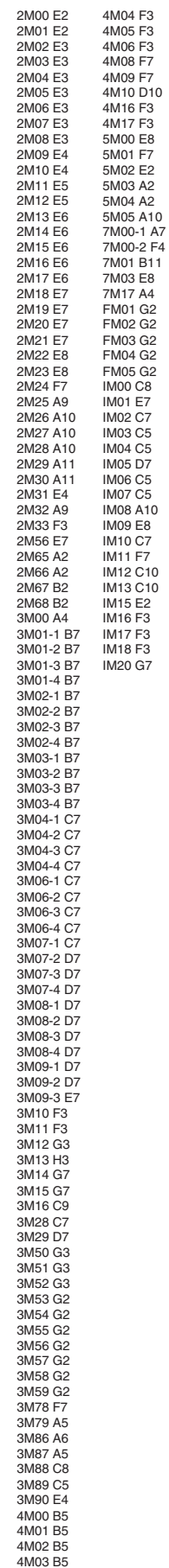
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B18 ADC



B19 COLUMBUS



B20 PACIFIC 3



1N02 A11	4N01 A3
1N03 H12	4N02 A3
1N04 G12	4N03 A3
1N05 J13	4N04 A3
1N06 J11	4N05 B3
1N12 E6	4N06 B3
1N13 F6	4N07 B3
1N14 F6	4N08 B3
1N15 G6	4N09 B3
1N16 A10	4N10 B3
1N17 D10	4N11 B12
1N18 D11	4N12 C12
1N19 G9	4N13 C12
1N20 J14	4N20 D8
2N01 J1	4N21 E8
2N02 J1	4N22 F8
2N03 J1	4N23 F8
2N04 J1	4N24 F8
2N05 J1	4N25 F8
2N06 J1	4N26 F8
2N07 J1	4N27 F8
2N08 J2	4N28 F9
2N09 J2	4N29 F9
2N10 J2	4N30 J12
2N11 J2	4N31 J12
2N12 J2	4N32 H10
2N13 J2	4N35 H10
2N14 J2	4N36 F9
2N15 J3	4N37 F10
2N16 J3	4N38 F8
2N17 J2	5N03 H5
2N19 J2	5N04 H2
2N20 J3	5N05 H6
2N21 J3	5N06 H6
2N22 J3	5N07 H6
2N23 J3	5N10 B2
2N24 J3	5N11 B4
2N25 J4	5N12 B3
2N26 J5	5N72 E13
2N26 J5	6N19 C11
2N28 H6	6N20 C13
2N29 H7	7N02 A3
2N30 H7	7N03-3 J8
2N31 J6	7N02 F3
2N32 J7	7N03 H4
2N33 J7	7N04 H2
2N35 J7	7N05 G3
2N37 J8	7N02 B2
2N37 J8	7N03 B3
2N38 J8	FN03 B3
2N40 J8	FN09 J4
2N41 J8	FN10 H5
2N42 J8	FN11 H7
2N43 J8	FN12 H7
2N44 J8	FN13 H7
2N44 J9	FN15 B12
2N45 J9	FN16 B12
2N46 J9	FN17 B12
2N47 J9	FN18 B12
2N48 J9	FN19 B12
2N49 J9	FN20 C12
2N50 J9	FN21 C12
2N51 J10	FN25 C12
2N54 C2	FN32 D10
2N55 C2	FN33 D10
2N56 C3	FN34 F10
2N57 C3	FN35 F12
2N58 C3	FN36 F12
2N59 C3	FN37 G12
2N60 C3	FN39 G12
2N61 C3	FN40 G12
2N62 C4	FN41 H12
2N63 C4	FN42 H12
2N64 C4	FN43 H12
2N65 C4	FN44 H12
2N66 C4	FN45 G10
2N67 C4	FN47 H10
2N68 J13	FN48 H10
2N69 J14	FN49 H10
2N75 E13	FN50 H10
2N80 E7	FN51 H10
2N81 E7	FN52 H10
2N82 E7	FN53 H10
2N83 E7	FN54 H10
2N84 E7	FN55 H10
2N85 F7	FN56 A12
2N86 F7	FN57 A12
2N87 F7	FN58 E13
2N88 F7	FN59 J9
2N89 F7	FN60 J9
2N90 F8	NO2 H5
3N01 E1	NO3 E10
3N02 E1	NO4 E10
3N03 F1	NO5 F9
3N04 F1	NO6 F9
3N05 F1	NO7 F9
3N06 F1	NO8 F9
3N10 A12	NO9 C12
3N11 A11	NO10 C11
3N12 C12	NO11 B13
3N13 B14	NO12 B13
3N14 B14	NO13 B13
3N15 B14	NO14 B13
3N16 B14	NO15 H12
3N17 B14	NO16 H12
3N19 C11	NO17 G13
3N20 G12	NO18 J12
3N21 G12	NO19 J12
3N22 H12	NO20 B13
3N23 H13	
3N24 H13	
3N27 G10	
3N28 G10	
3N29 B13	
3N30 F8	
3N31 F8	
3N71 E12	
3N72 E12	
3N73 E12	
3N80 E8	
3N81 E8	

SSB: Diversity Tables B9-B20

B09

Item Nr.		PDP 42" - 50"	LCD 26" - 32"	LCD 37" - 42"	PDP DVB 42" - 50"	PDP DVB SDI	PDP SDI	Description
2A00	319801731040							CER2 0603 X7R 16V 100N COL
2A01	319803401010							CER1 0402 NP0 50V 100P COL
2A02	319803401010							CER1 0402 NP0 50V 100P COL
2A12	319803521030							CER2 0402 X7R 16V 10N COL
2A13	319803571040							CER2 0402 Y5V 16V 100N COL
2A14	319803521030							CER2 0402 X7R 16V 10N COL
3A00	319803106890							RST SM 0402 68R PM5 COL
3A01	319803106890							RST SM 0402 68R PM5 COL
3A02	319803101020							RST SM 0402 1K PM5 COL
3A07	319803101030							RST SM 0402 10K PM5 COL
3A08	319803101030							RST SM 0402 10K PM5 COL
3A10	319803101030							RST SM 0402 10K PM5 COL
3A11	319803101030							RST SM 0402 10K PM5 COL
3A13	319803101030							RST SM 0402 10K PM5 COL
3A14	319803104720							RST SM 0402 4K7 PM5 COL
3A15	319803103320							RST SM 0402 3K3 PM5 COL
3A16	319803101030							RST SM 0402 10K PM5 COL
4A03	319802190030							RST SM 0603 JUMP. 0R05 COL
4A04	319803190010							RST SM 0402 JUMP. 0R05 COL
4A05	319803190010							RST SM 0402 JUMP. 0R05 COL
4A06	319803190010							RST SM 0402 JUMP. 0R05 COL
5A00	319801890060							FXDIND 0805 100MHZ 30R COL R
7A00	935275998118							IC SM PCA9515ADP (PHSE) R
7A02	319801042310							TRA SIG SM BC847BW (COL) R
7A03	319801042310							TRA SIG SM BC847BW (COL) R
7A04	319801042310							TRA SIG SM BC847BW (COL) R

B13

Item Nr.		EU 10pg TXT	EU 1000pg TX	AP with TXT	AP non TXT	Description
2E04	202055200005					CER2 0603 X5R 6V3 4U7 PM10 R
	202055200027					CER2 0603 X5R 6V3 4U7 PM10 R
2E05	202055200005					CER2 0603 X5R 6V3 4U7 PM10 R
2E06	202055200005					CER2 0603 X5R 6V3 4U7 PM10 R
2E15	319803571040					CER2 0402 Y5V 16V 100N COL
2E21	202055200005					CER2 0603 X5R 6V3 4U7 PM10 R
2E22	202055200005					CER2 0603 X5R 6V3 4U7 PM10 R
2E23	202055200005					CER2 0603 X5R 6V3 4U7 PM10 R
3E00	232270570569					RST SM 0402 RC31 56R PM5 R
3E01	232270570569					RST SM 0402 RC31 56R PM5 R
3E02	232270570569					RST SM 0402 RC31 56R PM5 R
3E13	319803103310					RST SM 0402 330R PM5 COL
	319803190010					RST SM 0402 JUMP. 0R05 COL
3E14	319803103310					RST SM 0402 330R PM5 COL
	319803190010					RST SM 0402 JUMP. 0R05 COL
3E15	319803103310					RST SM 0402 330R PM5 COL
	319803190010					RST SM 0402 JUMP. 0R05 COL
3E16	319803103310					RST SM 0402 330R PM5 COL
3E17	319803103310					RST SM 0402 330R PM5 COL
3E18	319803103310					RST SM 0402 330R PM5 COL
3E32	319803101010					RST SM 0402 100R PM5 COL
3E34	319803101010					RST SM 0402 100R PM5 COL
3E46	319803101010					RST SM 0402 100R PM5 COL
	319803101090					RST SM 0402 10R PM5 COL
4E10	319803101090					RST SM 0402 10R PM5 COL
4E11	319803101090					RST SM 0402 10R PM5 COL
5E02	242254945333					IND FXD 1206 EMI 100MHZ 120R R
5E03	242254945333					IND FXD 1206 EMI 100MHZ 120R R
6E01	319802052780					DIO REG SM BZX384-C2V7 COL R
6E03	319802052780					DIO REG SM BZX384-C2V7 COL R
7E02	932219956668					IC SM ADG781BCPZ (ANA0) R
7E03	319801071090					IC SM 74HC4053D (COL) R
7E04	319801070740					IC SM 74LCX14T (COL) R
	935260739118					IC SM 74LVC14APW (PHSE) R
7E05	319801070740					IC SM 74LCX14T (COL) R
	935260739118					IC SM 74LVC14APW (PHSE) R

B15AB

Item Nr.		Non DVB	With DVB	Description
1G03	242202518872			CON H 32P F 0.50 SM FPC 0.3 R
2G31	202055200005			CER2 0603 X5R 6V3 4U7 PM10 R
	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G32	319801741050			CER2 0603 Y5V 10V 1U COL
	319803041090			ELCAP SM 16V 10U PM20 COL R
2G35	319803571040			CER2 0402 Y5V 16V 100N COL
2G36	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G37	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G38	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G39	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G40	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G41	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G45	319801731020			CER2 0603 X7R 50V 1N COL
	319803501020			CER2 0402 X7R 50V 1N COL
2G48	319801741050			CER2 0603 Y5V 10V 1U COL
2G49	319801741050			CER2 0603 Y5V 10V 1U COL
2G50	319803041090			ELCAP SM 16V 10U PM20 COL R
2G51	319803571040			CER2 0402 Y5V 16V 100N COL
2G52	202055296703			CER1 0402 NP0 50V 180P PM5 R
2G53	202055296703			CER1 0402 NP0 50V 180P PM5 R
2G62	202055200035			CER2 0603 X5R 6V3 2U2 PM10 R
	202055200183			CER2 0603 X5R 6V3 2U2 PM10 R
2G63	202055200035			CER2 0603 X5R 6V3 2U2 PM10 R
	202055200183			CER2 0603 X5R 6V3 2U2 PM10 R
2G65	202055200005			CER2 0603 X5R 6V3 4U7 PM10 R
	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G66	202055200005			CER2 0603 X5R 6V3 4U7 PM10 R
	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
2G72	202055200005			CER2 0603 X5R 6V3 4U7 PM10 R
	202055200027			CER2 0603 X5R 6V3 4U7 PM10 R
3G40	319803101010			RST SM 0402 100R PM5 COL
3G41	319803101010			RST SM 0402 100R PM5 COL
3G42	319803104730			RST SM 0402 47K PM5 COL
3G43	319803104730			RST SM 0402 47K PM5 COL
3G44	319803101020			RST SM 0402 1K PM5 COL
3G45	319803104730			RST SM 0402 47K PM5 COL
3G46	319803101020			RST SM 0402 1K PM5 COL
3G47	319803104730			RST SM 0402 47K PM5 COL
3G48	319803106890			RST SM 0402 68R PM5 COL
3G49	319803101020			RST SM 0402 1K PM5 COL
3G50	319803106890			RST SM 0402 68R PM5 COL
3G51	319803101020			RST SM 0402 1K PM5 COL
3G52	319803101020			RST SM 0402 1K PM5 COL
3G53	319803104730			RST SM 0402 47K PM5 COL
3G54	319803101020			RST SM 0402 1K PM5 COL
3G55	319803104730			RST SM 0402 47K PM5 COL
3G56	319803101010			RST SM 0402 100R PM5 COL
3G60	319803104720			RST SM 0402 4K7 PM5 COL
3G61	319803104730			RST SM 0402 47K PM5 COL
3G62	319803104730			RST SM 0402 47K PM5 COL
3G63	319803101010			RST SM 0402 100R PM5 COL
3G64	319803101010			RST SM 0402 100R PM5 COL
3G65	319803104730			RST SM 0402 47K PM5 COL
3G66	319803104730			RST SM 0402 47K PM5 COL
3G67	319803104730			RST SM 0402 47K PM5 COL
3G68	319803104730			RST SM 0402 47K PM5 COL
3G69	319803104730			RST SM 0402 47K PM5 COL
3G70	319803104730			RST SM 0402 47K PM5 COL
3G71	319803101010			RST SM 0402 100R PM5 COL
3G80	319803106890			RST SM 0402 68R PM5 COL
3G81	319803101020			RST SM 0402 1K PM5 COL
3G83	319803101030			RST SM 0402 10K PM5 COL
3G84	319803101030			RST SM 0402 10K PM5 COL
3G85	319803104730			RST SM 0402 47K PM5 COL
3G86	319803104730			RST SM 0402 47K PM5 COL
3G87	319803104730			RST SM 0402 47K PM5 COL
3G88	319803101020			RST SM 0402 1K PM5 COL
3G89	319803104730			RST SM 0402 47K PM5 COL
3G90	319803101020			RST SM 0402 1K PM5 COL
3G91	319803101020			RST SM 0402 1K PM5 COL
3G92	319803102230			RST SM 0402 22K PM5 COL

B16

Item Nr.		LCD 37" - 42"	LCD 26" - 32"	PDP 42" - 50"	Description
1J00	242202510771				CON V 10P M 2.00 PH B
1J01	242202510655				CON V 11P M 2.00 PH B
1J02	242202510772				CON V 12P M 2.00 PH B
1J03	242202510768				CON V 3P M 2.00 PH B
1J07	242208611081				FUSE SM T 3A 125V UL R
1J08	242254945333				IND FXD 1206 EMI 100MHZ 120R R
2J18	319803401010				CER1 0402 NP0 50V 100P COL
2J19	319803401010				CER1 0402 NP0 50V 100P COL
2J22	319803401010				CER1 0402 NP0 50V 100P COL
2J23	319803401010				CER1 0402 NP0 50V 100P COL
2J31	319803401010				CER1 0402 NP0 50V 100P COL
3J03	319803106890				RST SM 0402 68R PM5 COL
3J04	319803106890				RST SM 0402 68R PM5 COL
4J01	319803190010				RST SM 0402 JUMP. 0R05 COL
5J04	242254945333				IND FXD 1206 EMI 100MHZ 120R R

B17

Item Nr.		26in - 32in	37in - 50in	Description
1K01	242202510772			CON V 12P M 2.00 PH B
1K04	242202510655			CON V 11P M 2.00 PH B
2K15	319803401010			CER1 0402 NP0 50V 100P COL
3K08	319803106890			RST SM 0402 68R PM5 COL
4K02	319802190030			RST SM 0603 JUMP. 0R05 COL

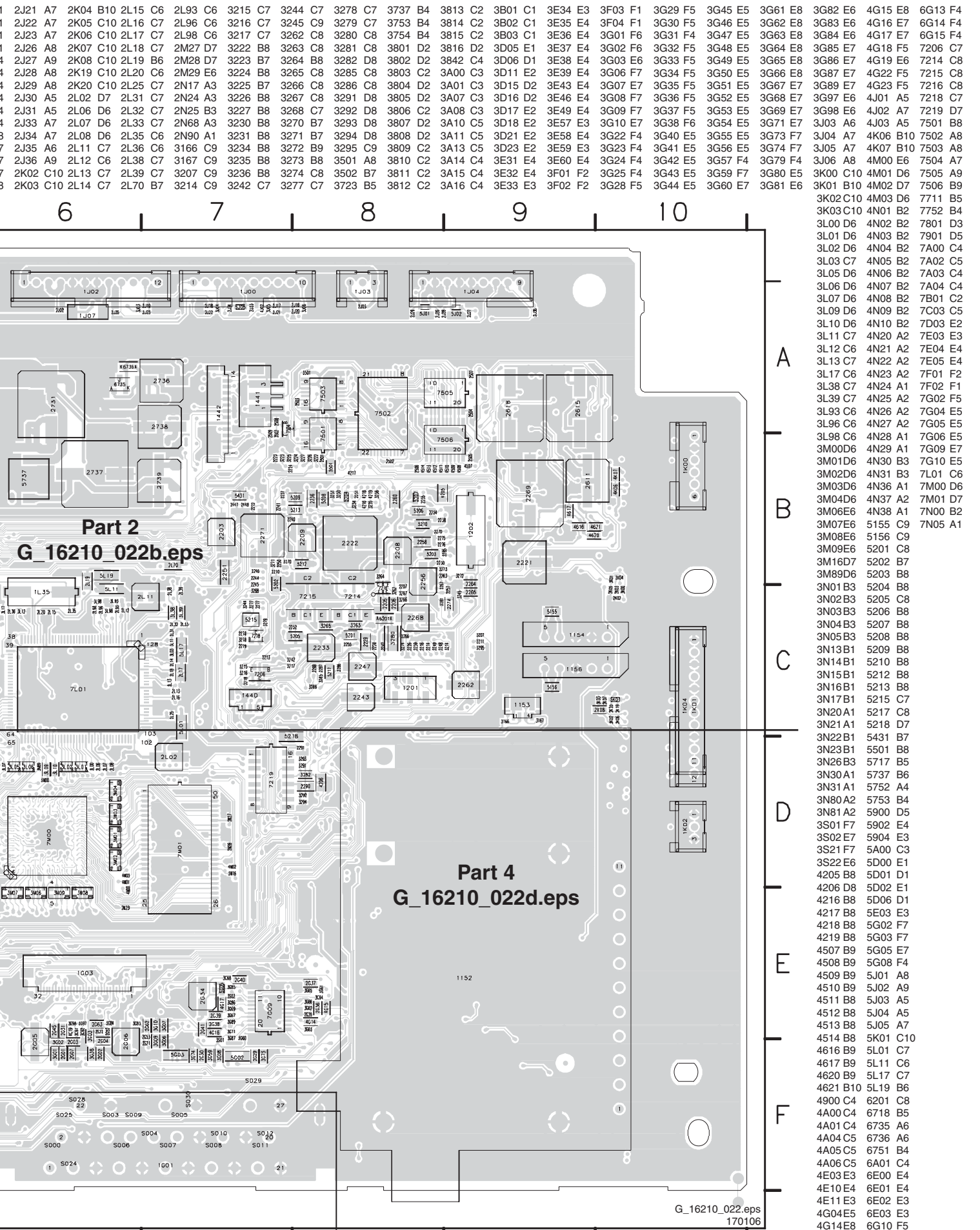
B20 LVDS Conn.

Item Nr.		PDP LG	LCD 37" - 42"	LCD 26" - 32"	PDP FHP	PDP SDI	Description
1N16	242202518772						CON V 30P M 1.25 SM 1453230 R
1N17	242202518427						CON H 31P F 1.25 SM FI-WE R
2N90	319803571030						CER2 0402 Y5V 16V 10N COL
3N30	319803101030						RST SM 0402 10K PM5 COL
3N31	319803104720						RST SM 0402 4K7 PM5 COL
3N80	319803101010						RST SM 0402 100R PM5 COL
3N81	319803101010						RST SM 0402 100R PM5 COL
4N24	319803190010						RST SM 0402 JUMP. 0R05 COL
4N26	319803190010						RST SM 0402 JUMP. 0R05 COL
4N36	319803190010						RST SM 0402 JUMP. 0R05 COL
4N37	319803190010						RST SM 0402 JUMP. 0R05 COL
7N05	319801042310						TRA SIG SM BC847BW (COL) R

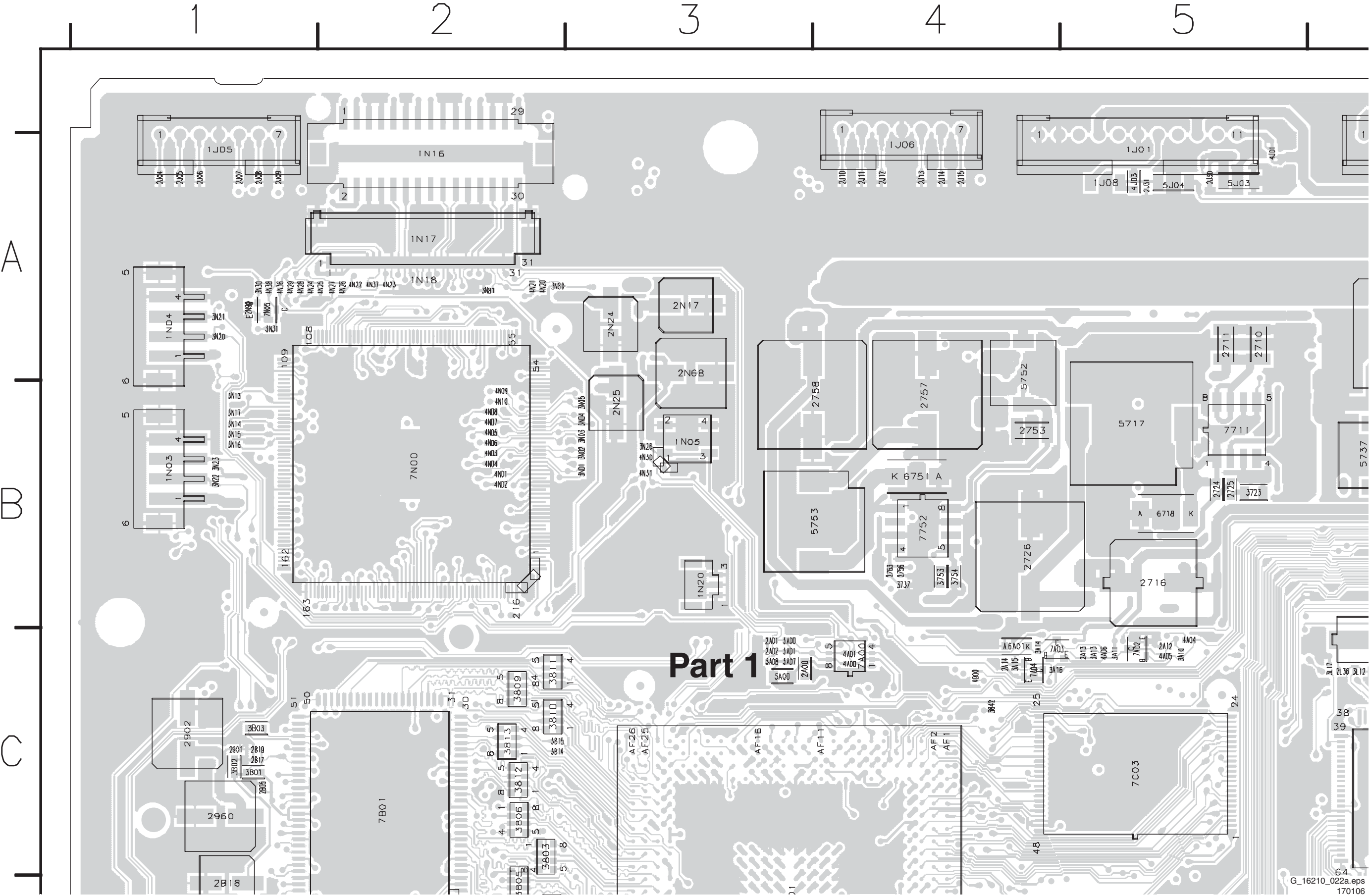
B20 Pac-3

Item Nr.		With Pixel Plus (Pac)	Non Pixel Plus	Description
1N02	242254000017	☒	☐	R
1N03	242202518779	☒	☐	CON V 4P M 2.00 SM PH R
1N04	242202518196	☐	☐	CON V 4P M 2.00 SM PH R
	242202518779	☒	☐	CON V 4P M 2.00 SM PH R
1N05	242212802975	☐	☐	SWI TACT SM H=0.5 160G SKQR R
1N19	242202518734	☐	☐	CON V 10P M 2.00 SM PH R
2N01	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N02	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N03	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N04	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N05	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N06	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N07	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N08	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N09	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N10	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N11	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N12	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N13	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N14	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N15	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N16	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N17	319803024790	☒	☐	ELCAP SM 6V3 47U PM20 COL R
2N19	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N20	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N21	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N22	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N23	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N24	319803024790	☐	☐	ELCAP SM 6V3 47U PM20 COL R
2N25	319803024790	☒	☐	ELCAP SM 6V3 47U PM20 COL R
2N26	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N27	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N28	202055200005	☒	☐	CER2 0603 X5R 6V3 4U7 PM10 R
	202055200027	☒	☐	CER2 0603 X5R 6V3 4U7 PM10 R
2N29	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N30	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N31	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N32	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
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2N35	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
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2N37	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
2N38	319803571040	☒	☐	CER2 0402 Y5V 16V 100N COL
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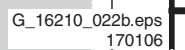
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1153	C9	1J00	A7	1N04	A1	2214	C8	2235	B8	2251	B7	2270	B8	2447	B7	2711	A5	2815	D4	2802	D1	2E31	E3	2G23	F4	2G45	E6	2J03
1154	C9	1J01	A5	1N05	B3	2216	C8	2236	B8	2255	C8	2271	B7	2448	B7	2716	B5	2901	C1	2805	C1	2E32	E4	2G29	F7	2G48	E5	2J04
1156	C9	1J02	A6	1N16	A2	2218	C7	2237	B7	2256	B8	2272	B7	2501	B8	2724	B5	2902	C1	2817	C1	2E36	E4	2G30	F7	2G49	E5	2J05
1201	C8	1J03	A6	1N17	A2	2221	B9	2238	B8	2257	C9	2274	C9	2502	B8	2725	B5	2903	D5	2818	D1	2G02	F6	2G31	E6	2G50	E5	2J11
1202	B9	1J04	A9	1N18	A2	2222	B8	2240	B7	2258	B8	2275	B8	2503	A8	2726	B4	2904	D5	2819	C1	2G02	F6	2G32	E5	2G51	E5	2J11
1440	C7	1J05	A1	1N20	B3	2223	B7	2241	B7	2259	C8	2276	B8	2504	A9	2731	A6	2934	E5	2D02	D1	2G03	F6	2G34	E7	2G52	E6	2J11
1441	A7	1J06	A4	2203	B7	2224	B7	2242	C8	2260	B8	2277	C7	2505	B9	2736	A7	2940	E3	2D42	E1	2G04	F6	2G35	E8	2G53	E7	2J11
1442	A7	1J07	A6	2205	C8	2226	C8	2243	C8	2262	C9	2278	C7	2506	B8	2737	B6	2960	C1	2D43	D1	2G05	F6	2G36	E8	2G62	E7	2J11
1801	D4	1J08	A5	2206	C8	2228	C8	2244	B7	2263	B8	2279	C7	2507	A9	2738	A7	2A00	C3	2D44	E1	2G06	F6	2G37	E8	2G63	E6	2J11
1F01	F2	1K00	B10	2207	C8	2229	C8	2245	B7	2264	B9	2285	B9	2508	A7	2739	B7	2A01	C3	2D46	E2	2G07	F6	2G38	E7	2G71	F4	2J11
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1F03	F1	1K02	D10	2209	B8	2231	B8	2247	C8	2266	C8	2287	C8	2611	B9	2756	B4	2A12	C5	2D50	D2	2G19	F4	2G40	E7	2J03	A8	2J11
1G01	F7	1K04	C10	2210	B7	2232	C8	2248	C8	2267	C8	2288	C8	2615	A9	2757	B4	2A13	C5	2D52	E2	2G20	F4	2G41	E7	2J04	A1	2J12
1G02	F4	1L35	C6	2211	C9	2233	C8	2249	C8	2268	C8	2290	D8	2618	A9	2758	B4	2A14	C4	2D54	E2	2G21	F4	2G42	F5	2J05	A1	2J12



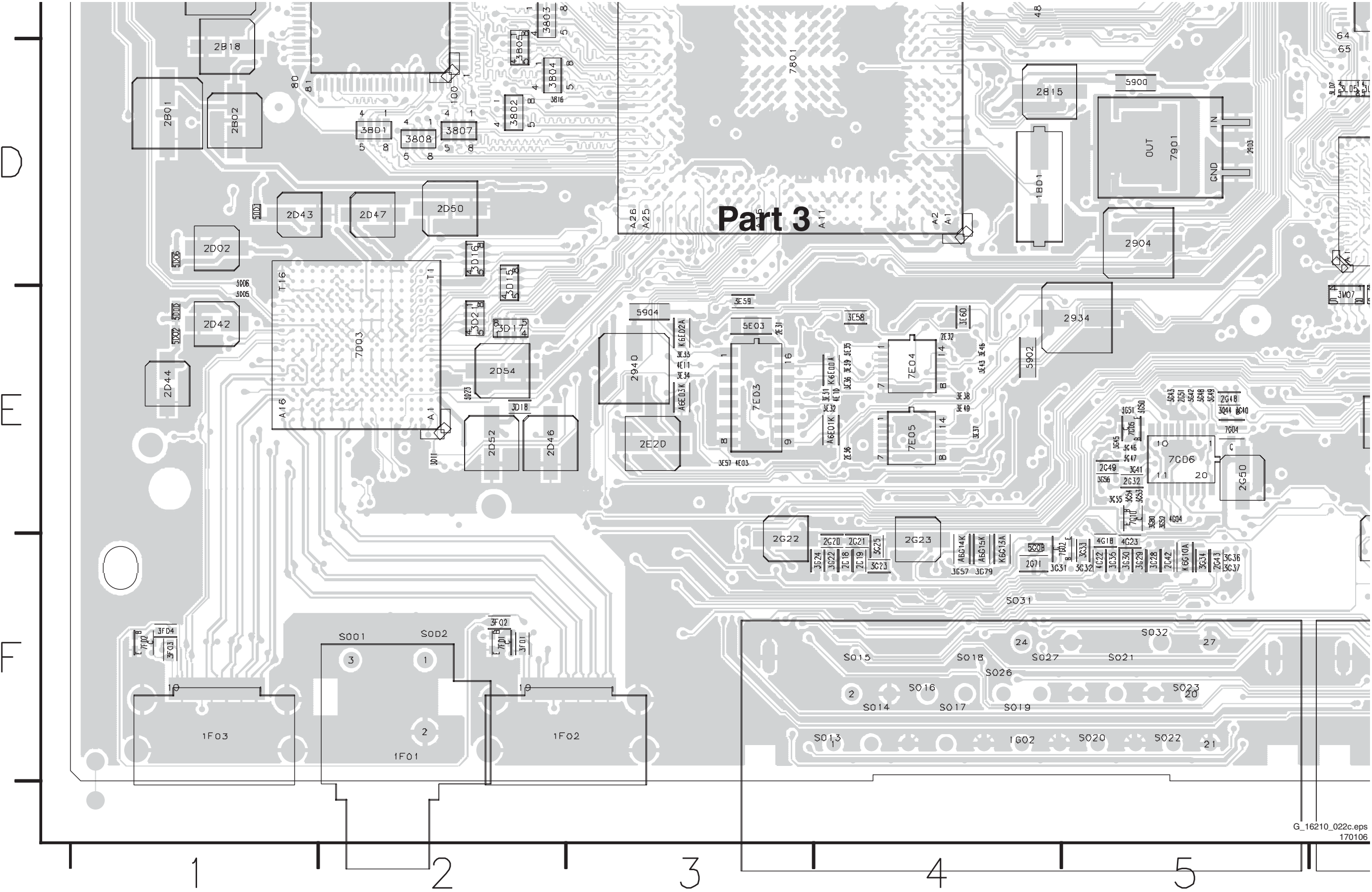
Layout Small Signal Board (Top Side Part 1)



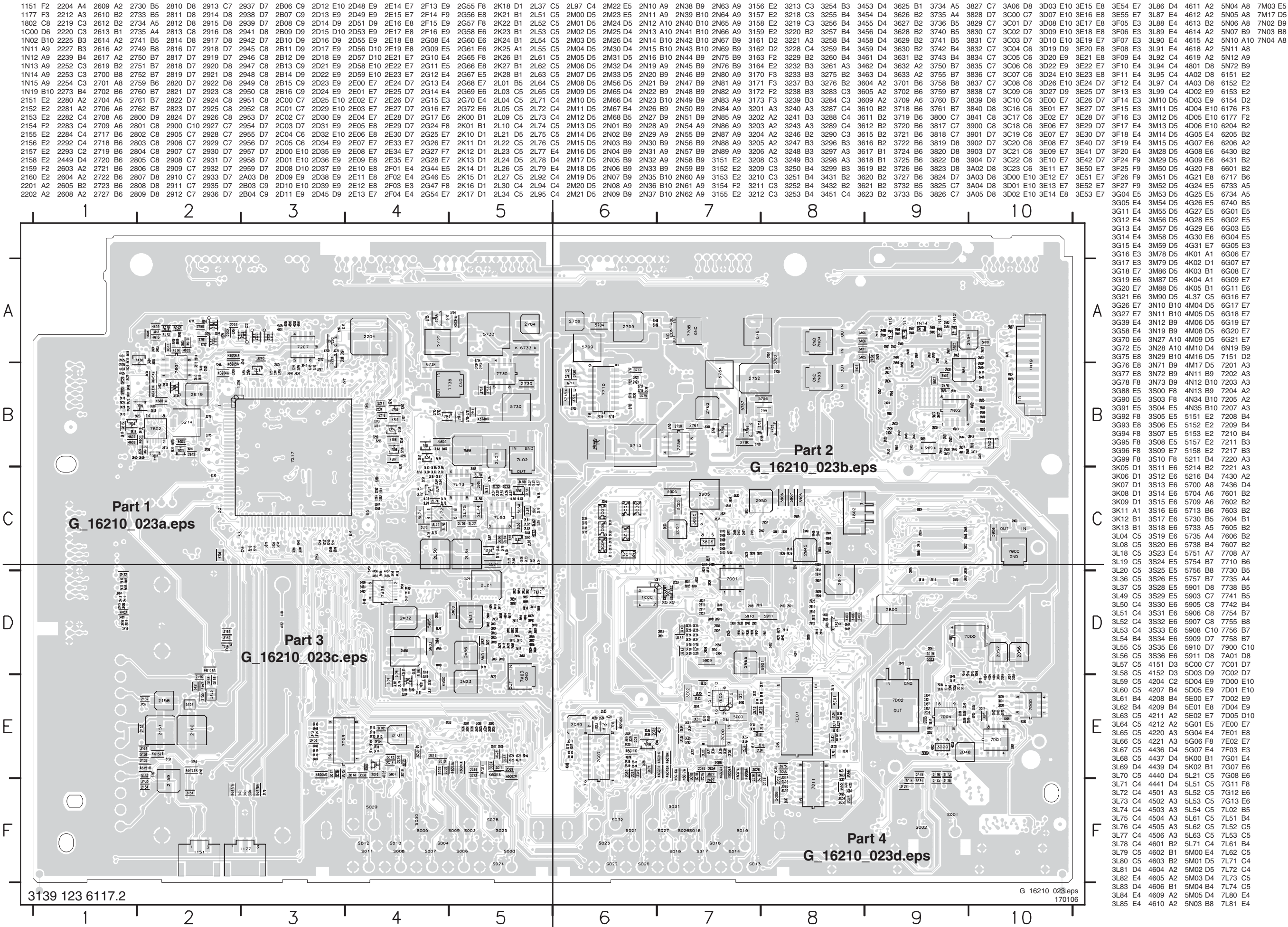
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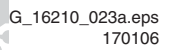
Layout Small Signal Board (Top Side Part 3)



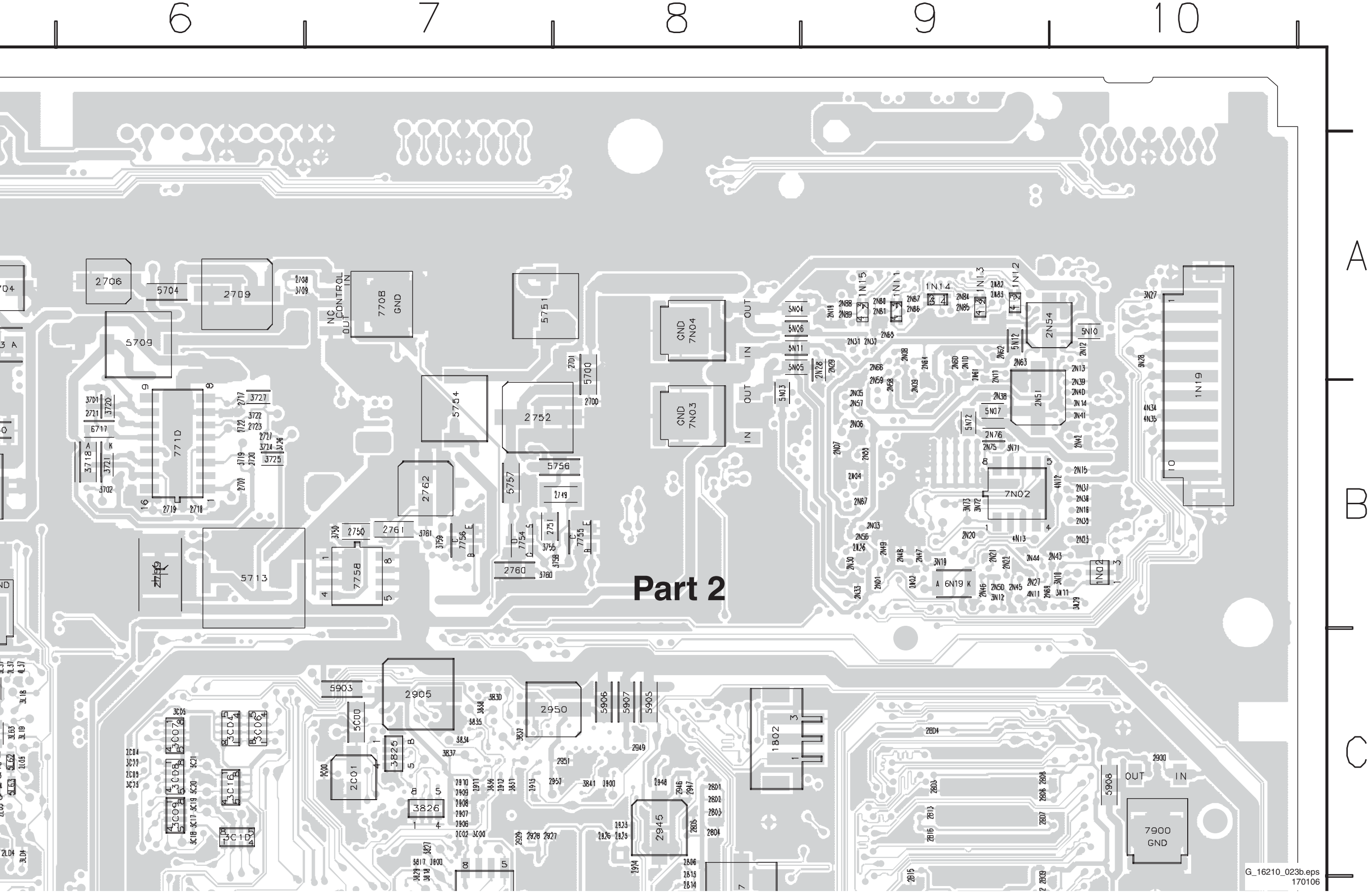
Layout Small Signal Board (Bottom Side Overview)



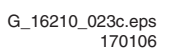
1 2 3 4 5



Layout Small Signal Board (Bottom Side Part 2)

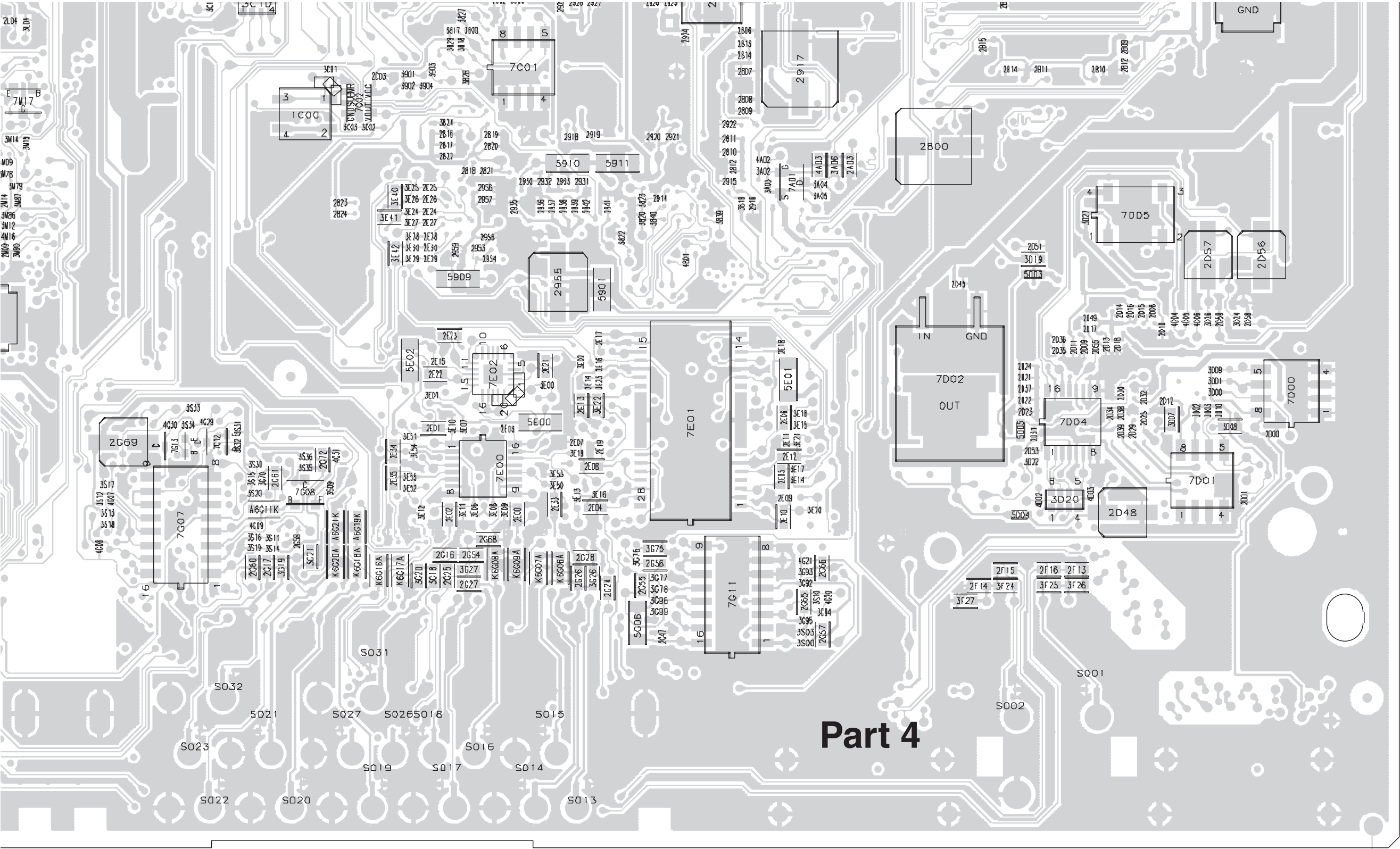


Part 3



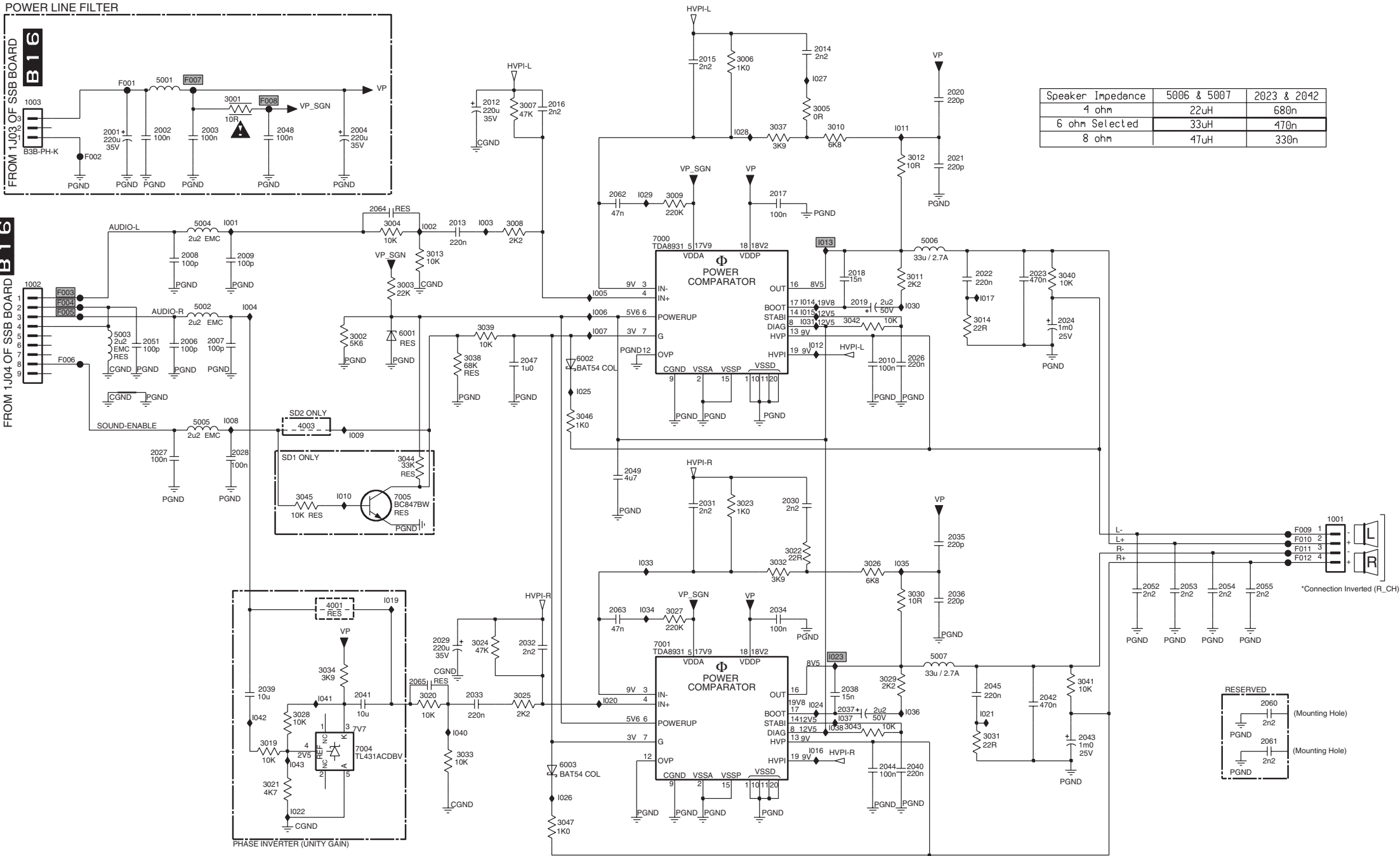
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Layout Small Signal Board (Bottom Side Part 4)



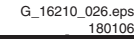
Class D Audio Amplifier (26" & 32")

CLASS D AUDIO AMPLIFIER (26" & 32" ONLY)

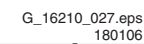


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- 1002 C2
- 1003 A2
- 1001 B2
- 2002 B3
- 2003 B3
- 2004 B4
- 2006 C3
- 2007 C3
- 2008 C3
- 2009 C3
- 2010 C8
- 2012 A5
- 2013 B5
- 2014 A8
- 2015 A7
- 2016 A6
- 2017 B7
- 2018 C8
- 2019 C8
- 2020 A9
- 2021 B9
- 2022 C9
- 2023 C9
- 2024 C9
- 2026 C8
- 2027 D3
- 2028 D3
- 2029 F5
- 2030 D7
- 2031 E7
- 2032 F5
- 2033 F5
- 2034 E7
- 2035 E9
- 2036 E9
- 2037 F8
- 2038 F8
- 2039 F3
- 2040 G8
- 2041 F4
- 2042 F9
- 2043 F10
- 2044 G8
- 2045 F9
- 2047 C5
- 2048 B4
- 2049 D6
- 2051 C3
- 2052 E10
- 2053 E10
- 2054 E11
- 2055 E11
- 2060 F11
- 2061 F11
- 2062 B6
- 2063 E6
- 2064 B4
- 2065 F5
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- 3002 C4
- 3003 C4
- 3004 B4
- 3005 B8
- 3006 A7
- 3007 B5
- 3008 B5
- 3009 B7
- 3010 B8
- 3011 C8
- 3012 B8
- 3013 C5
- 3014 C9
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- 3020 F5
- 3021 G3
- 3022 E7
- 3023 E7
- 3024 F5
- 3025 F5
- 3026 E8
- 3027 E7
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- 3029 F8
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- 3031 F9
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- 3033 F5
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- 3039 C5
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- 3041 F10
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- 3046 D6
- 3047 G6
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- 4003 D4
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- 5002 C3
- 5003 C2
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- 5005 D3
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- 6003 F6
- 7000 C6
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- F003 C2
- F004 C2
- F005 C2
- F006 C2
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- I013 C8
- I014 C8
- I015 C8
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- I017 C9
- I019 E4
- I020 F6
- I021 F9
- I022 G4
- I023 F8
- I024 F8
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- I026 G6
- I027 G6
- I028 G6
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- I098 F5
- I099 F5
- I100 F5

1001 A2	1002 A3	1003 A3	2001 A2	2004 A3	2012 A4	2019 A4	2023 A3	2024 A4	2029 A1	2037 A1	2042 A2	2043 A2	5006 A3	5007 A2
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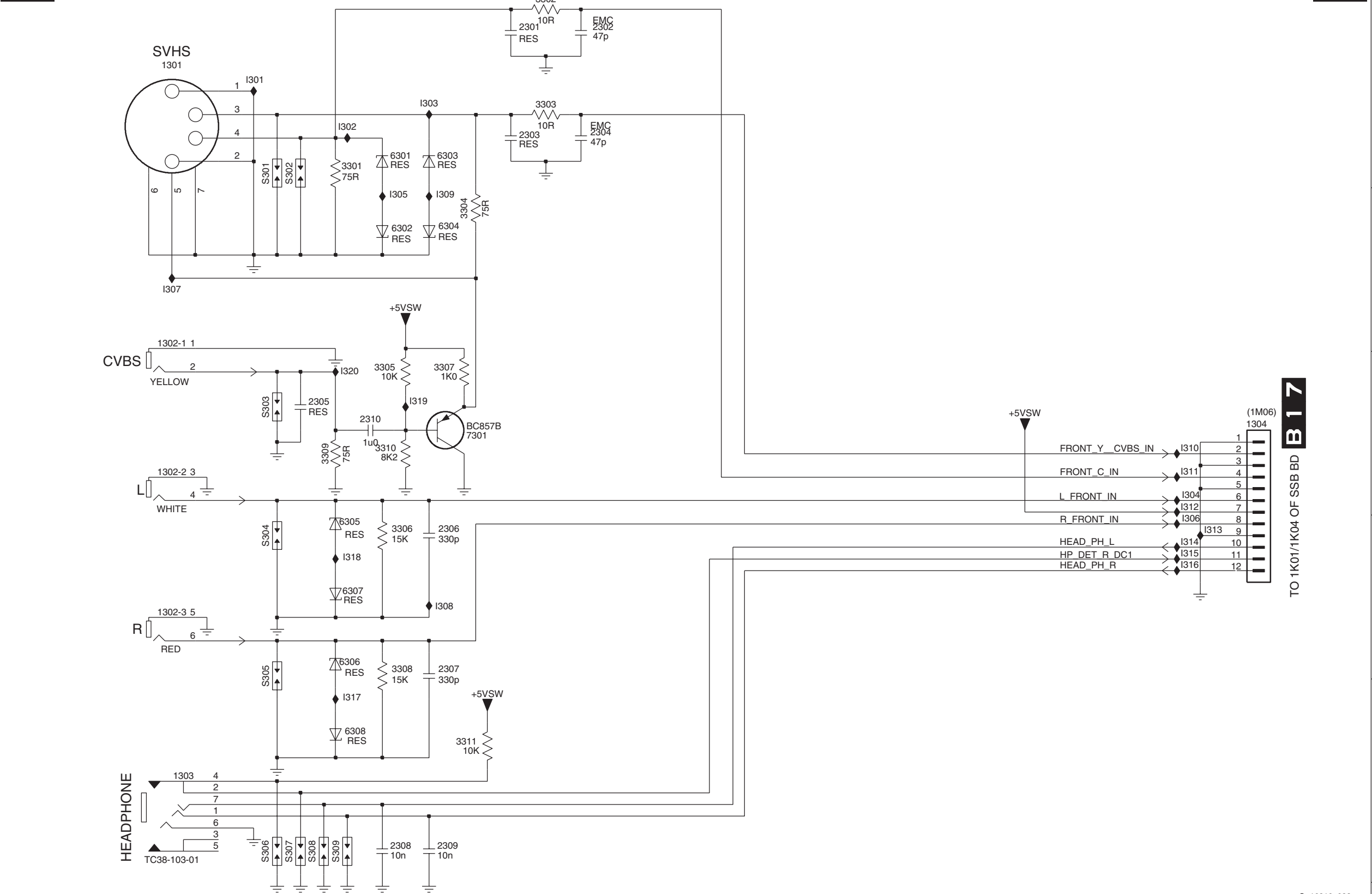


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2003	A3	2014	A1	2022	A2	2033	A4	2041	A3	2052	A3	2063	A4	3005	A1	3012	A1	3023	A4	3030	A4	3039	A2	3046	A2	5004	A2	7004	A3
2006	A2	2015	A1	2026	A1	2034	A4	2044	A3	2053	A3	2064	A2	3006	A1	3013	A2	3024	A4	3031	A3	3040	A3	3047	A3	5005	A3	7005	A2
2007	A2	2016	A2	2027	A3	2035	A3	2045	A3	2054	A3	2065	A4	3007	A2	3014	A2	3025	A4	3032	A4	3041	A3	4001	A4	6001	A1		
2008	A2	2017	A2	2028	A3	2036	A4	2047	A2	2055	A3	3001	A3	3008	A2	3019	A3	3026	A3	3033	A4	3042	A1	4003	A2	6002	A2		
2009	A2	2018	A1	2030	A4	2038	A4	2048	A3	2060	A1	3002	A1	3009	A1	3020	A4	3027	A4	3034	A3	3043	A3	5001	A3	6003	A3		
2010	A1	2020	A1	2031	A4	2039	A4	2049	A3	2061	A4	3003	A1	3010	A1	3021	A3	3028	A3	3037	A1	3044	A2	5002	A2	7000	A1		



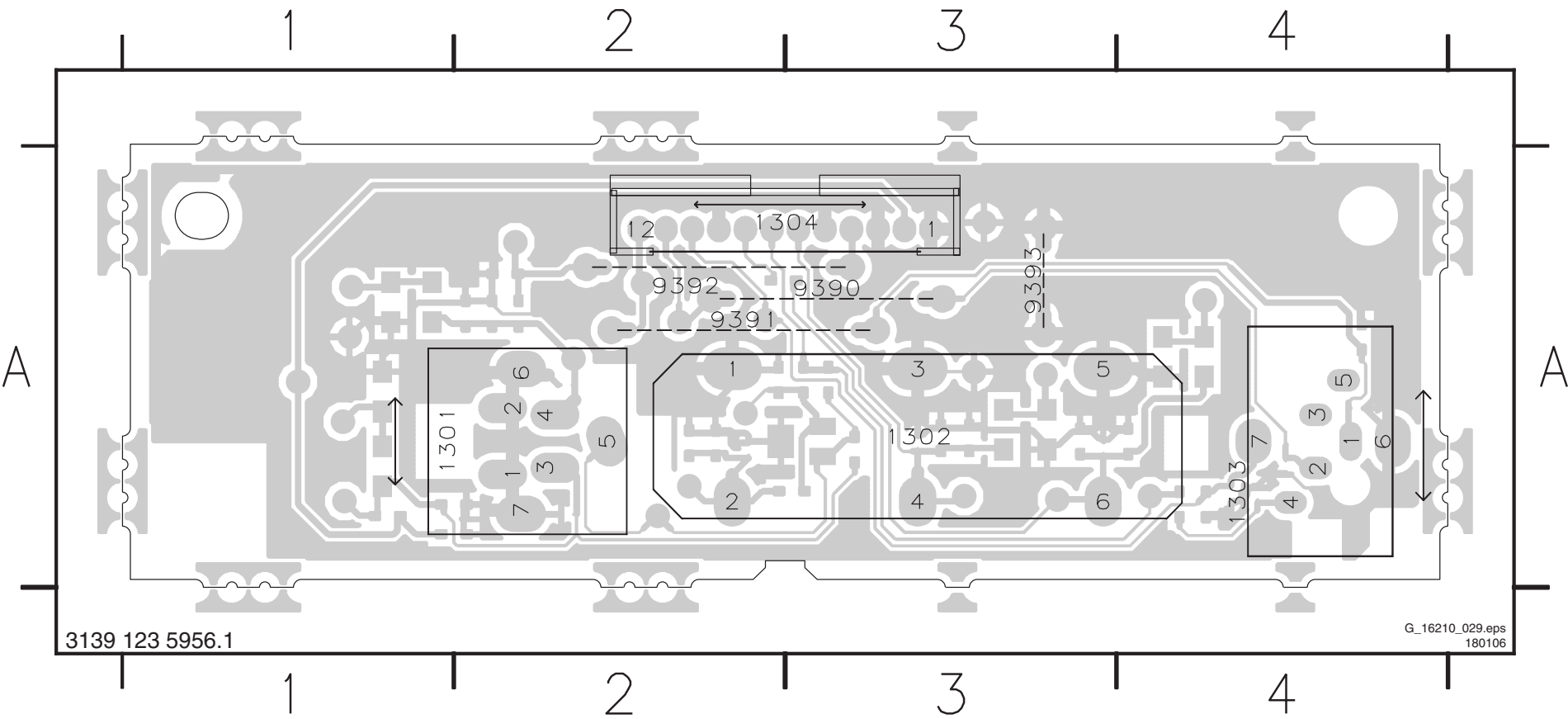
Side I/O Panel (26" & 32")

D SIDE I/O (26" & 32" ONLY)



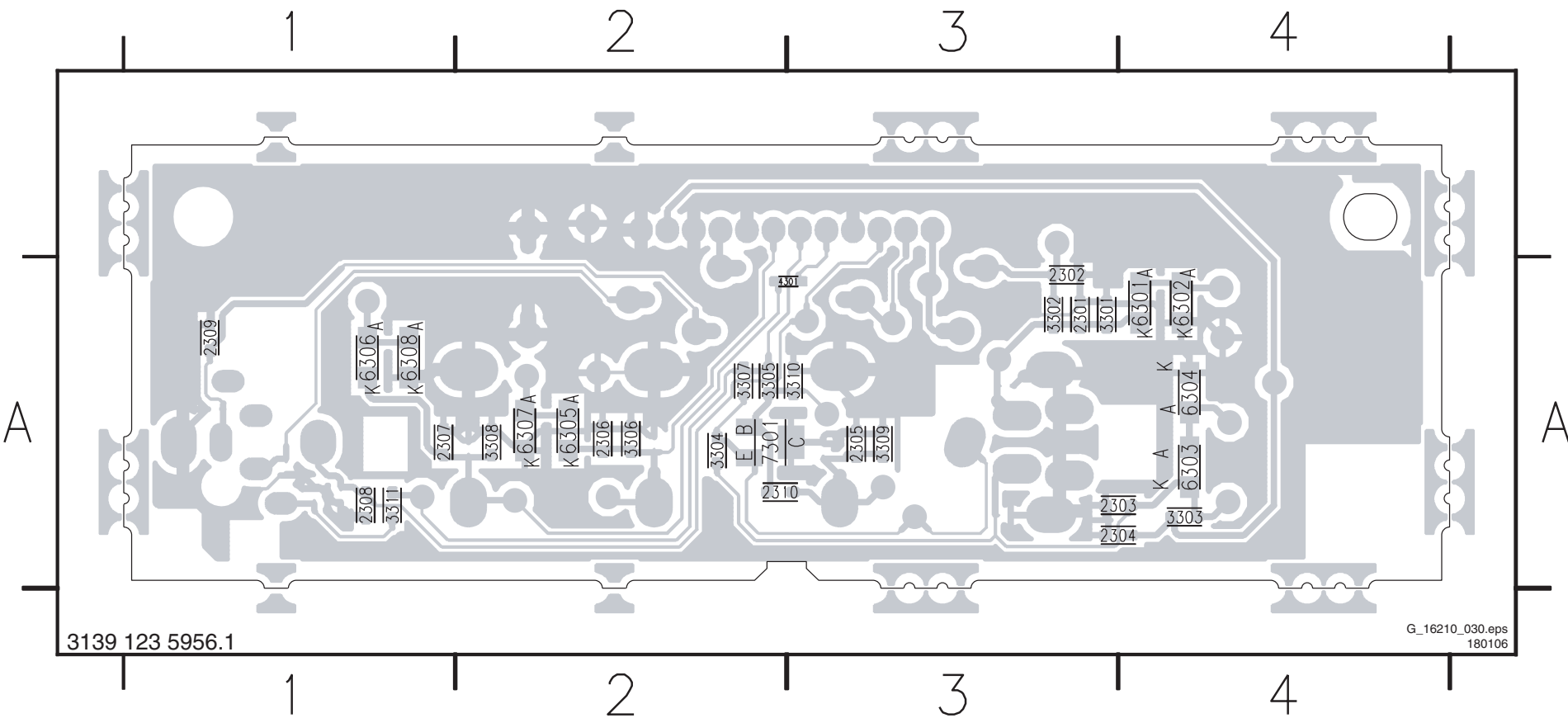
Layout Side I/O Panel (26" & 32") (Top Side)

1301 A1 1302 A3 1303 A4 1304 A2 9390 A3 9391 A2 9392 A2 9393 A3

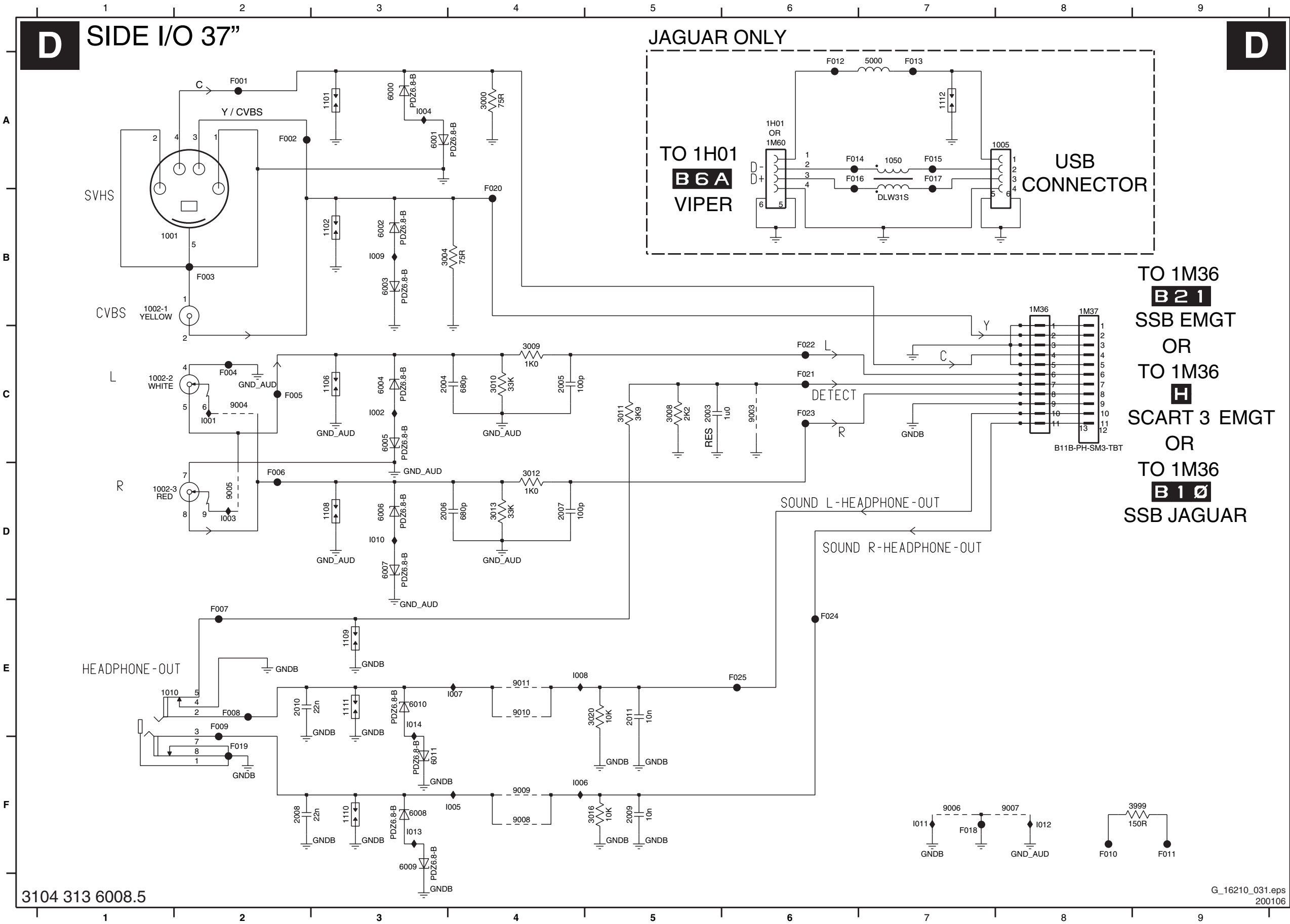


Layout Side I/O Panel (26" & 32") (Bottom Side)

2301 A3 2304 A3 2307 A1 2310 A2 3303 A4 3306 A2 3309 A3 4301 A3 6303 A4 6306 A1 7301 A2
2302 A3 2305 A3 2308 A1 3301 A3 3304 A2 3307 A2 3310 A3 6301 A4 6304 A4 6307 A2
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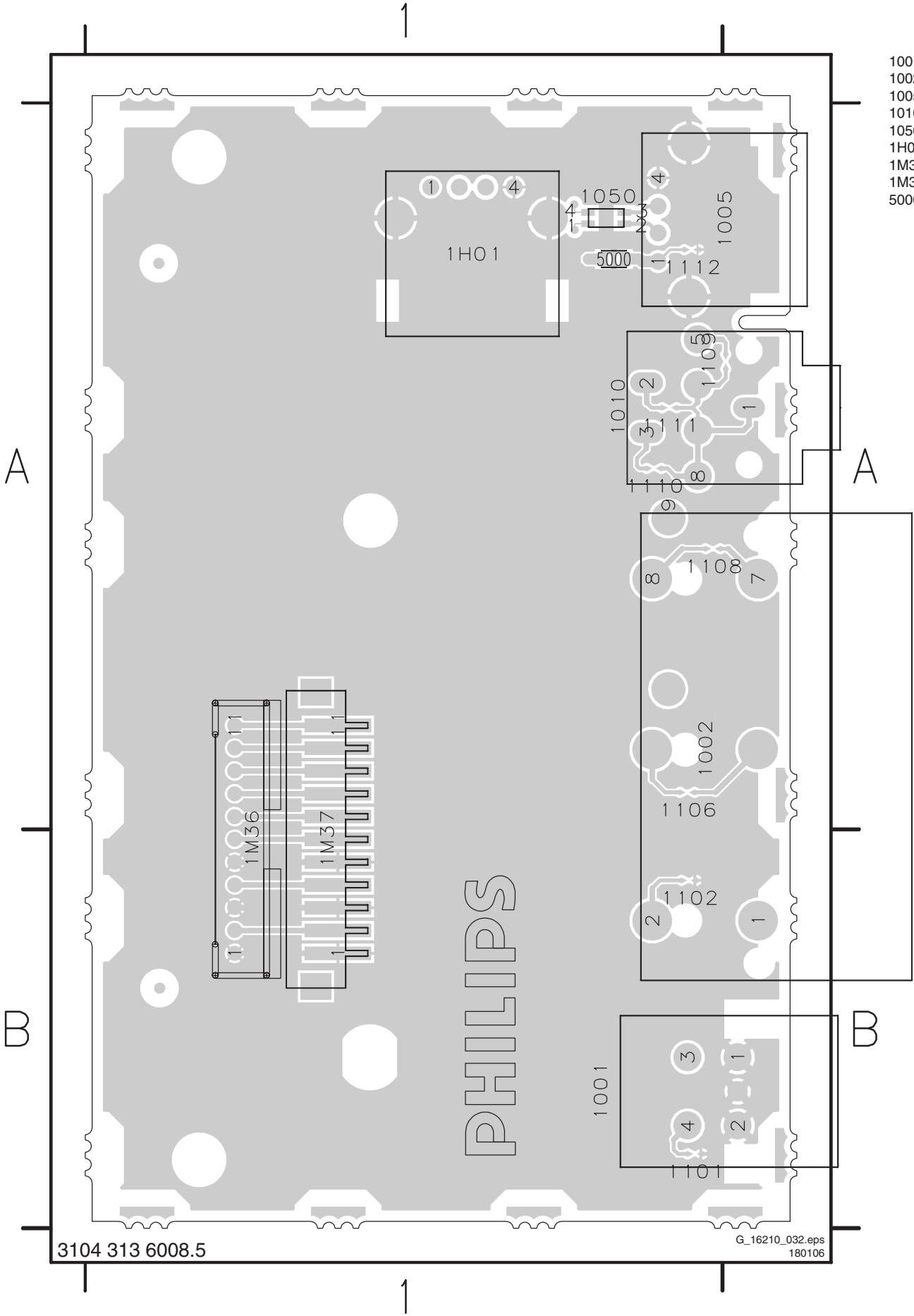


Side I/O Panel (37")



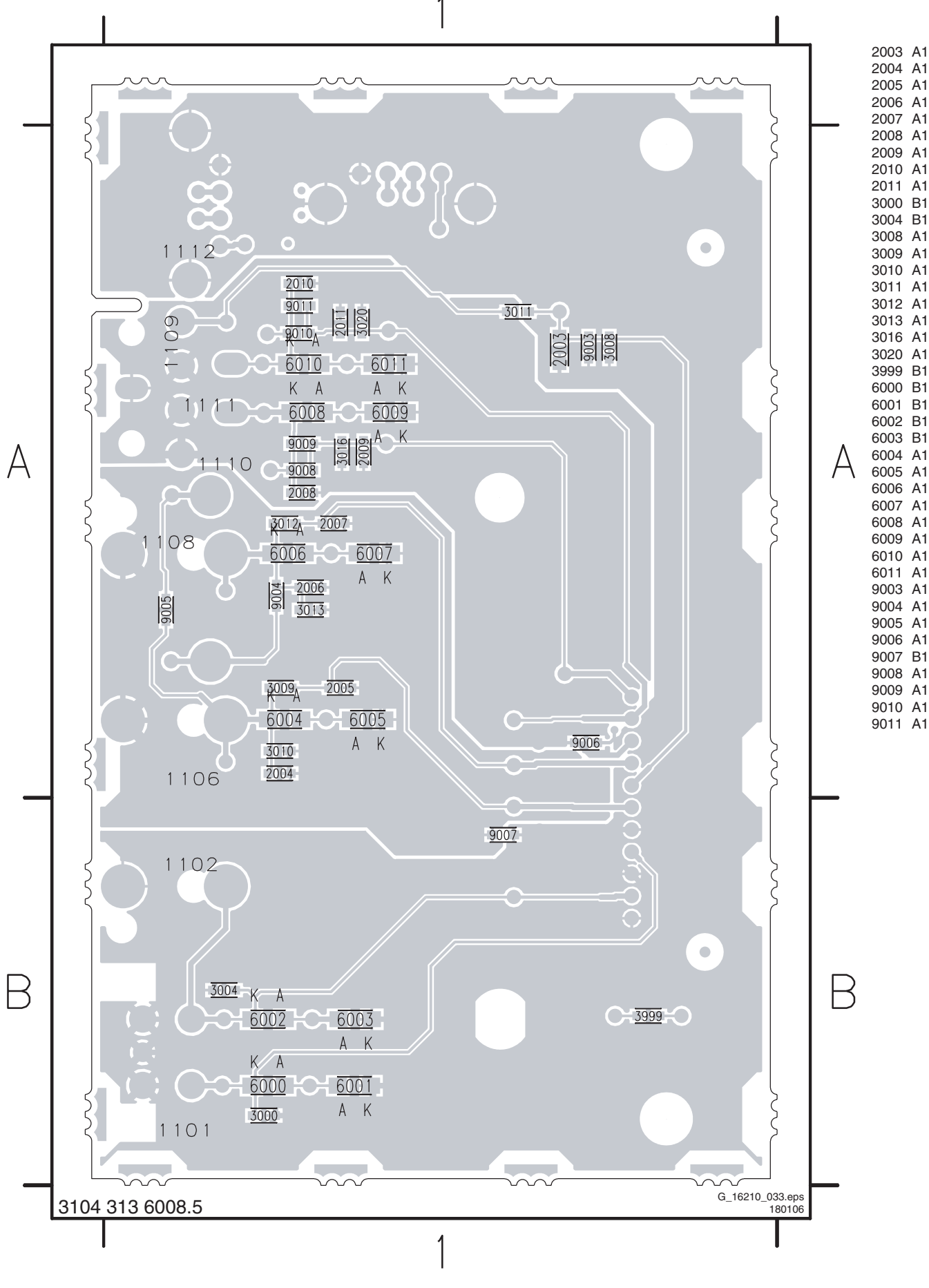
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1002-1 B1	F003 B2
1002-2 C1	F004 C2
1002-3 D1	F005 C2
1005 A8	F006 D2
1010 E1	F007 E2
1050 A7	F008 E2
1101 A3	F009 E2
1102 B3	F010 F8
1106 C3	F011 F9
1108 D3	F012 A6
1109 E3	F013 A7
1110 F3	F014 A6
1111 E3	F015 A7
1112 A7	F016 A6
1H01 A6	F017 A7
1M36 B8	F018 F7
1M37 B8	F019 F2
2003 C5	F020 B4
2004 C3	F021 C6
2005 C4	F022 C6
2006 D3	F023 C6
2007 D4	F024 E6
2008 F2	F025 E6
2009 F5	I001 C2
2010 E2	I002 C3
2011 E5	I003 D2
3000 A4	I004 A3
3004 B3	I005 F4
3008 C5	I006 F4
3009 C4	I007 E4
3010 C4	I008 E4
3011 C5	I009 B3
3012 D4	I010 D3
3013 D4	I011 F7
3016 F5	I012 F8
3020 E5	I013 F3
3999 F9	I014 E3
5000 A7	
6000 A3	
6001 A3	
6002 B3	
6003 B3	
6004 C3	
6005 C3	
6006 D3	
6007 D3	
6008 F3	
6009 F3	
6010 E3	
6011 F3	
9003 C6	
9004 C2	
9005 D2	
9006 F7	
9007 F8	
9008 F4	
9009 F4	
9010 E4	
9011 E4	
F001 A2	

Layout Side I/O Panel (37") (Top Side)



1001 B1
1002 A1
1005 A1
1010 A1
1050 A1
1H01 A1
1M36 B1
1M37 B1
5000 A1

Layout Side I/O Panel (37") (Bottom Side)



2003 A1
2004 A1
2005 A1
2006 A1
2007 A1
2008 A1
2009 A1
2010 A1
2011 A1
3000 B1
3004 B1
3008 A1
3009 A1
3010 A1
3011 A1
3012 A1
3013 A1
3016 A1
3020 A1
3999 B1
6000 B1
6001 B1
6002 B1
6003 B1
6004 A1
6005 A1
6006 A1
6007 A1
6008 A1
6009 A1
6010 A1
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9011 A1

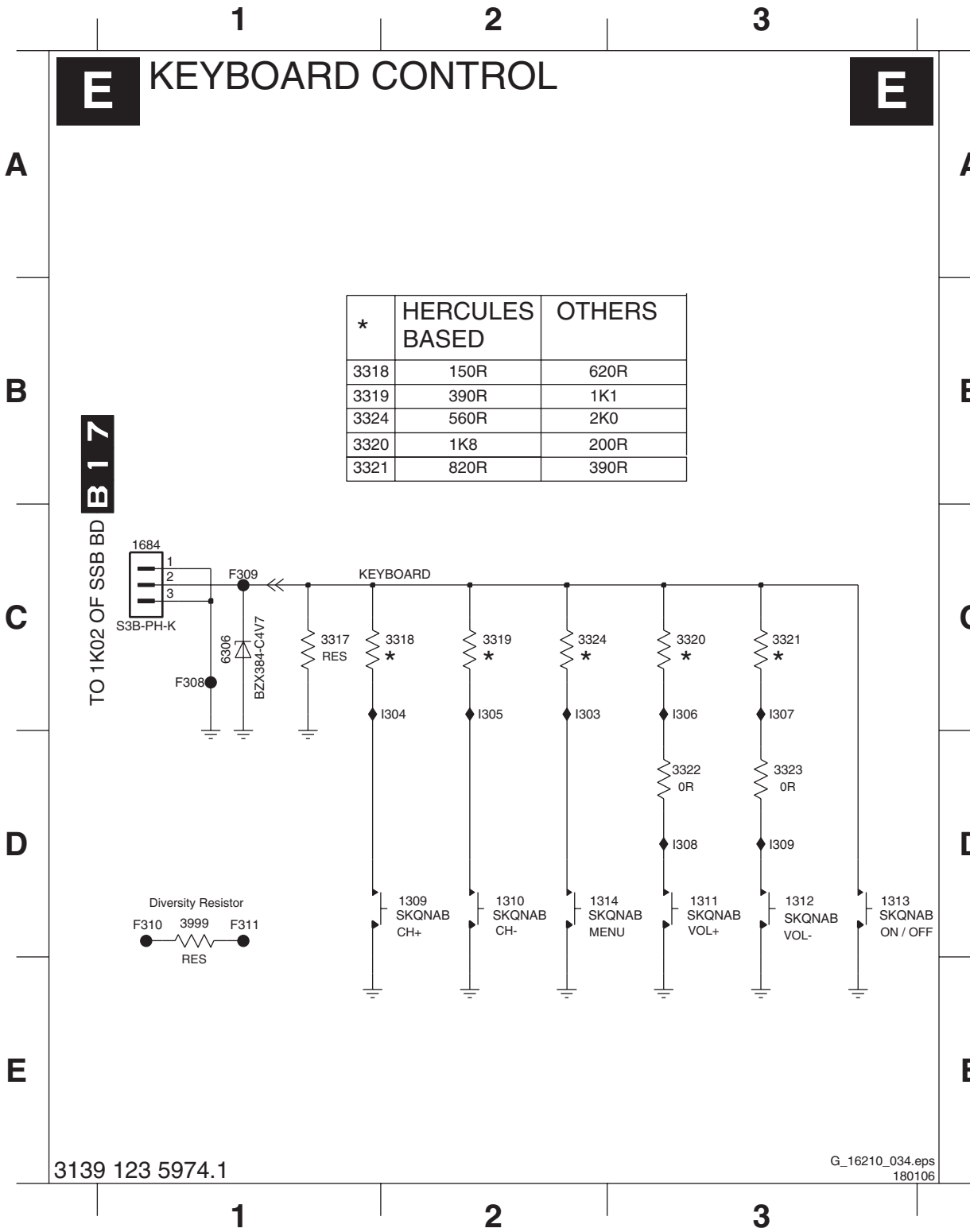
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G_16210_032.eps
180106

3104 313 6008.5

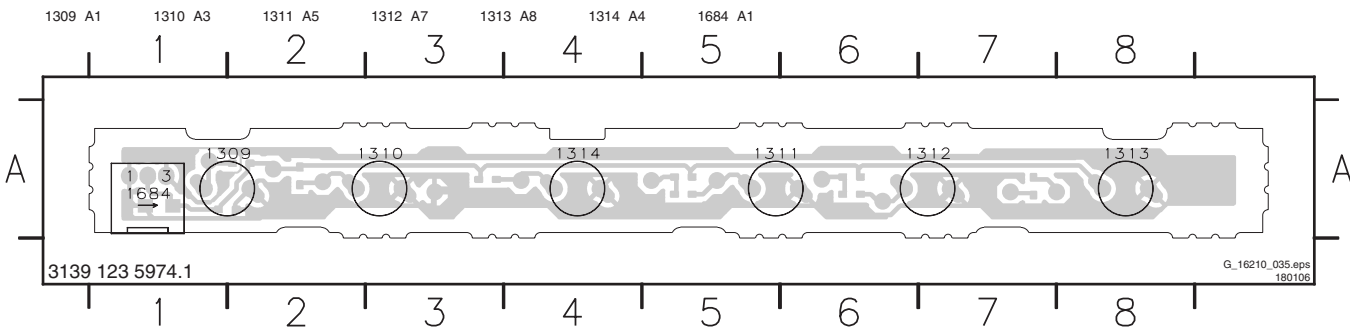
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180106

Keyboard Control Board (26" & 32")

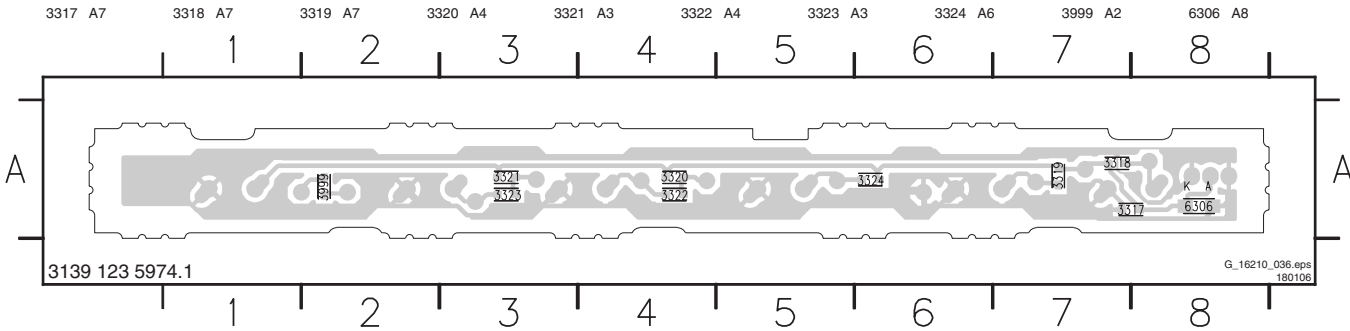


1008 D1
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1310 D2
1311 D3
1312 D3
1313 D3
1314 D2
1684 C1
3317 C1
3318 C2
3319 C2
3320 C3
3321 C3
3322 D3
3323 D3
3324 C2
3999 D1
6306 C1
F308 C1
F309 C1
F310 D1
F311 D1
I303 C2
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I306 C3
I307 C3
I308 D3
I309 D3

Layout Keyboard Control Board (26" & 32") (Top Side)

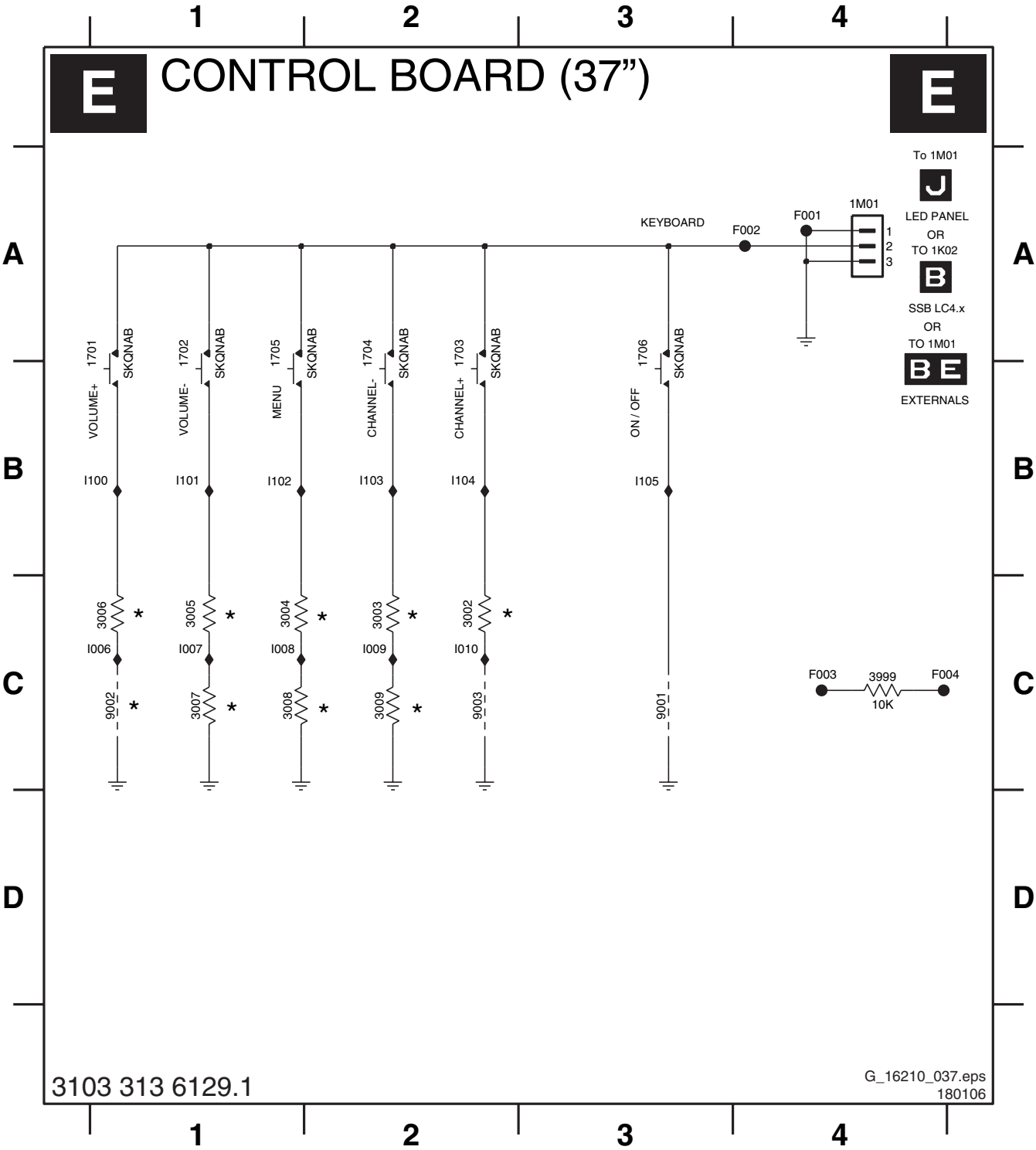


Layout Keyboard Control Board (26" & 32") (Bottom Side)

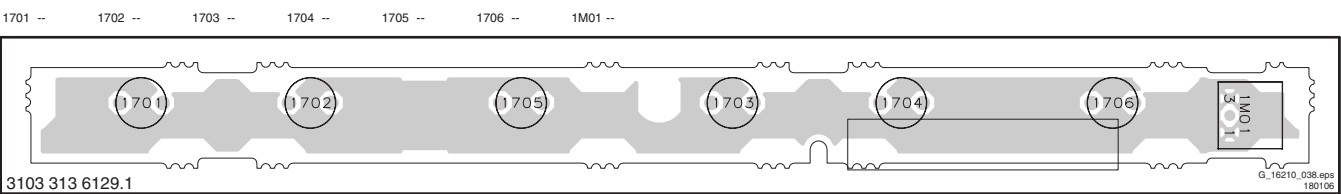


Keyboard Control Board (37")

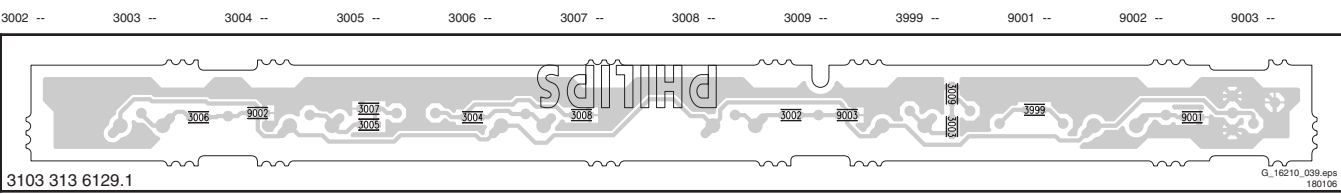
1701 A1	1704 A2	1M01 A4	3004 C1	3007 C1	3999 C4	9003 C2	F003 C4	I007 C1	I010 C2	I102 B1	I105 B3
1702 A1	1705 A1	3002 C2	3005 C1	3008 C1	9001 C3	F001 A4	F004 C4	I008 C1	I100 B1	I103 B2	
1703 A2	1706 A3	3003 C2	3006 C1	3009 C2	9002 C1	F002 A4	I006 C1	I009 C2	I101 B1	I104 B2	



Layout Keyboard Control Board (37") (Top Side)

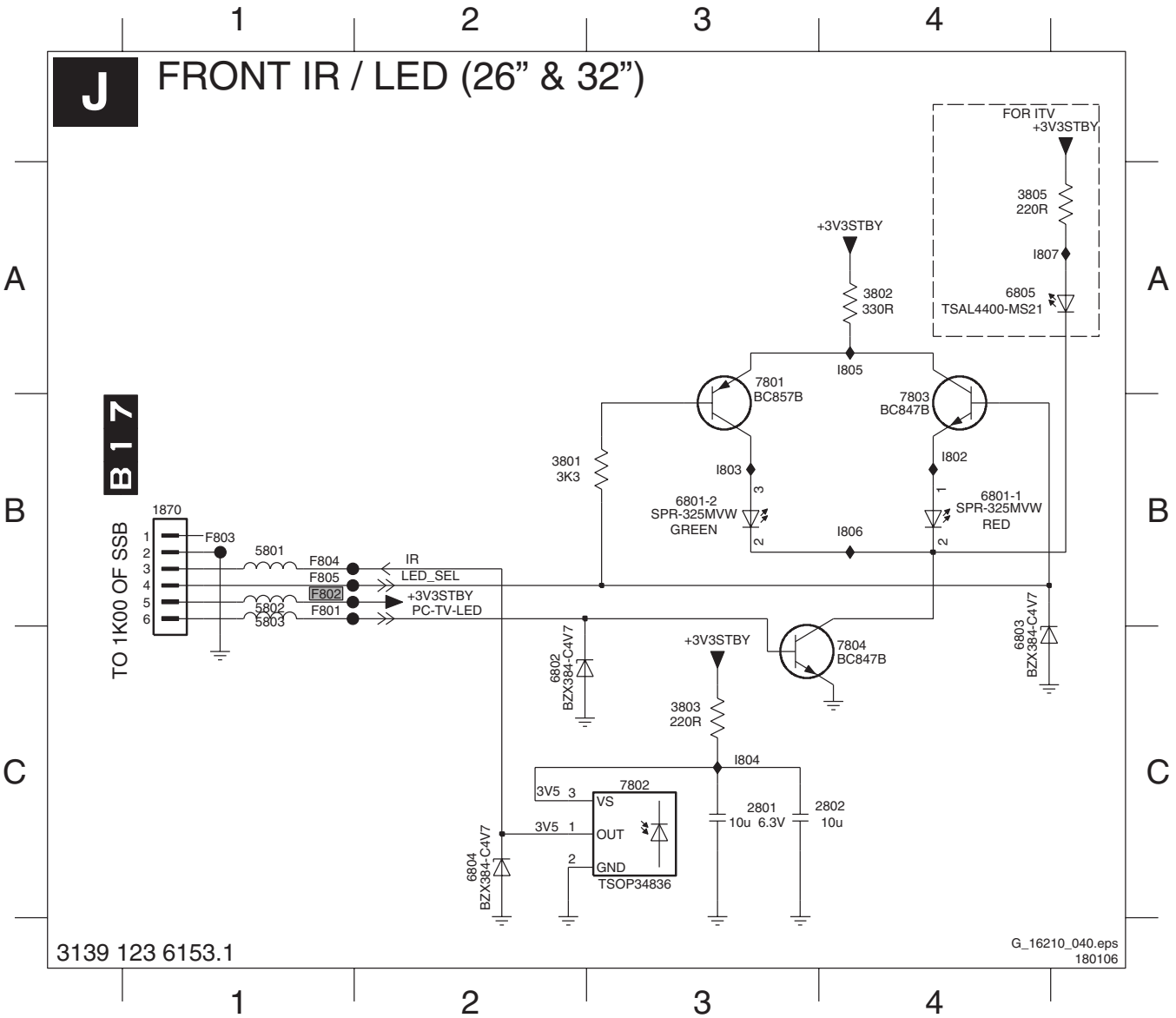


Layout Keyboard Control Board (37") (Bottom Side)

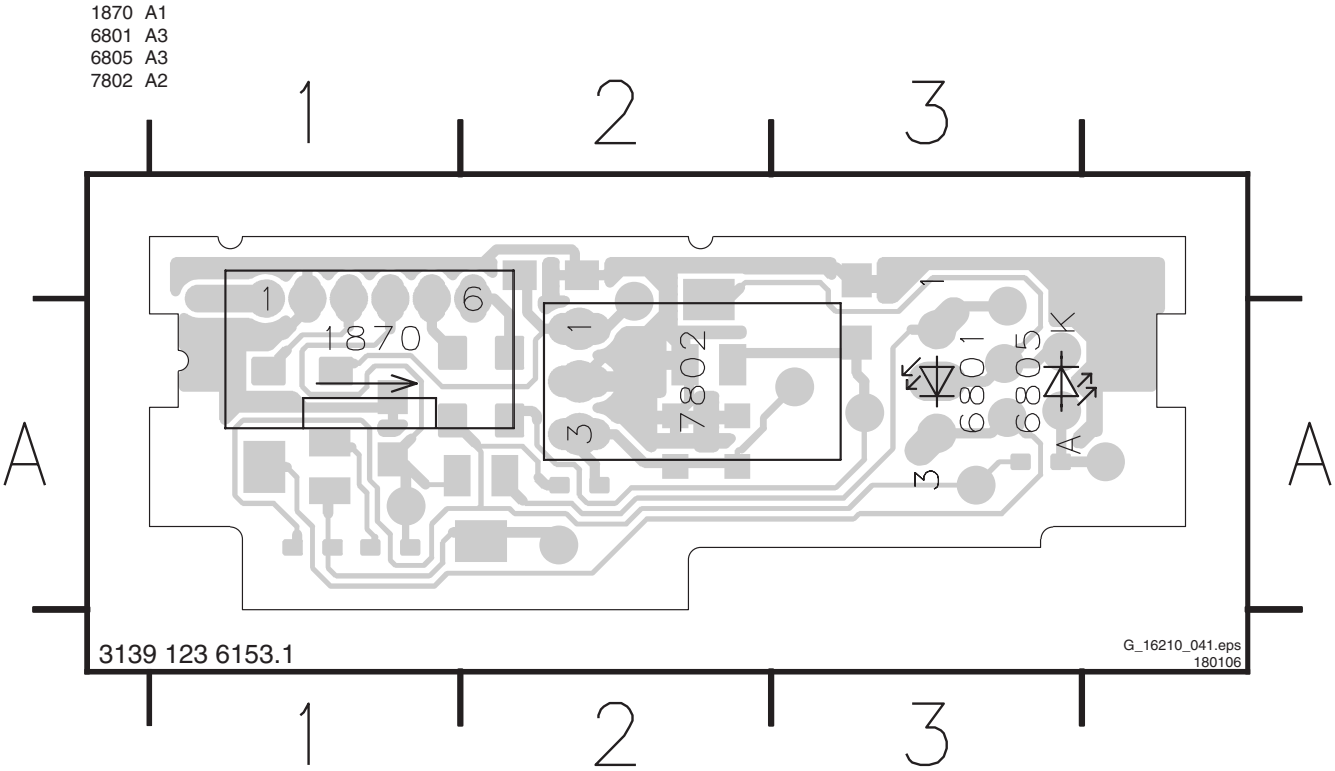


Front IR / LED Panel (26" & 32") (ME5P)

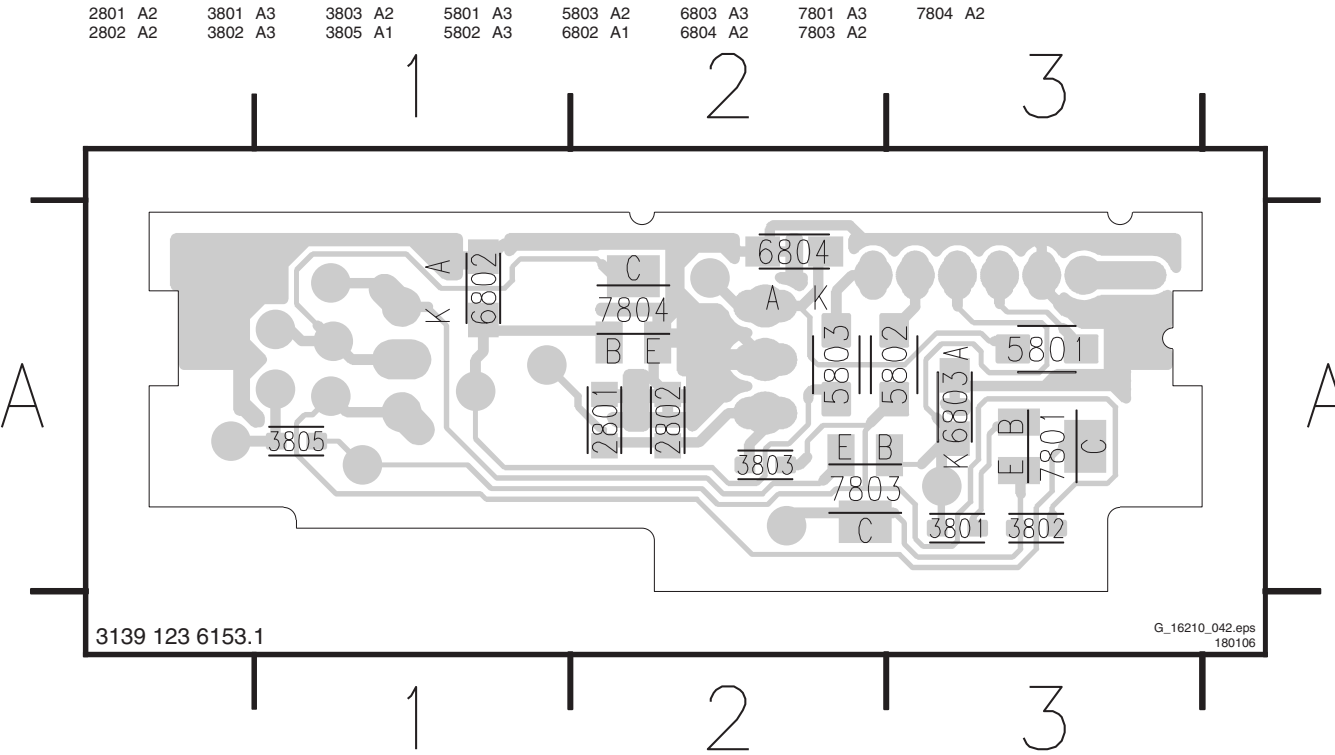
1870 B1	3802 A4	5802 B1	6802 C2	7801 A3	F801 B1	F805 B1	I805 A4
2801 C3	3803 C3	5803 C1	6803 C4	7802 C3	F802 B1	I802 B4	I806 B4
2802 C4	3805 A4	6801-1 B4	6804 C2	7803 B4	F803 B1	I803 B3	I807 A4
3801 B2	5801 B1	6801-2 B3	6805 A4	7804 C4	F804 B1	I804 C3	



Layout Front IR / LED Panel (26" & 32") (ME5P) (Top Side)

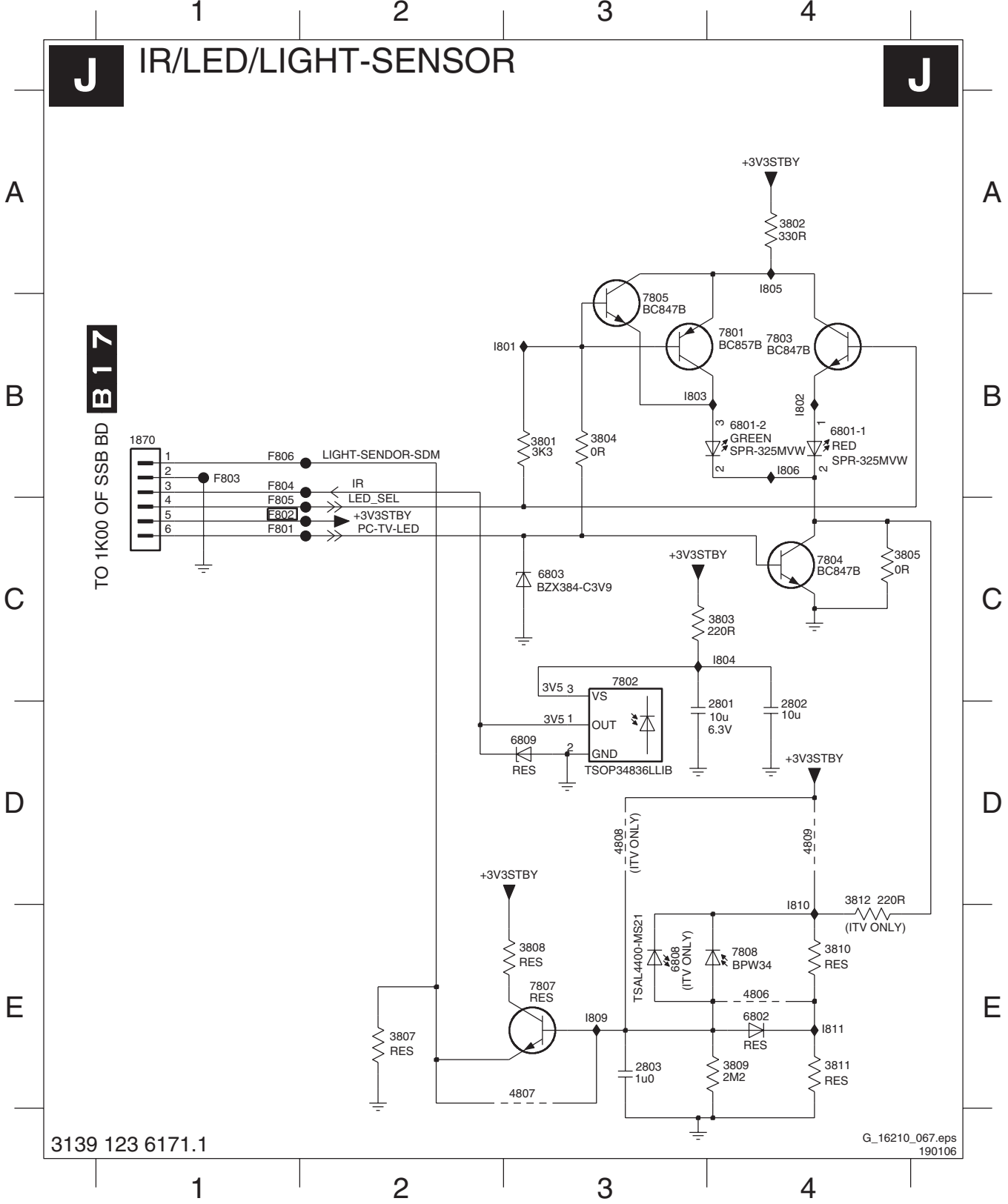


Layout Front IR / LED Panel (26" & 32") (ME5P) (Bottom Side)

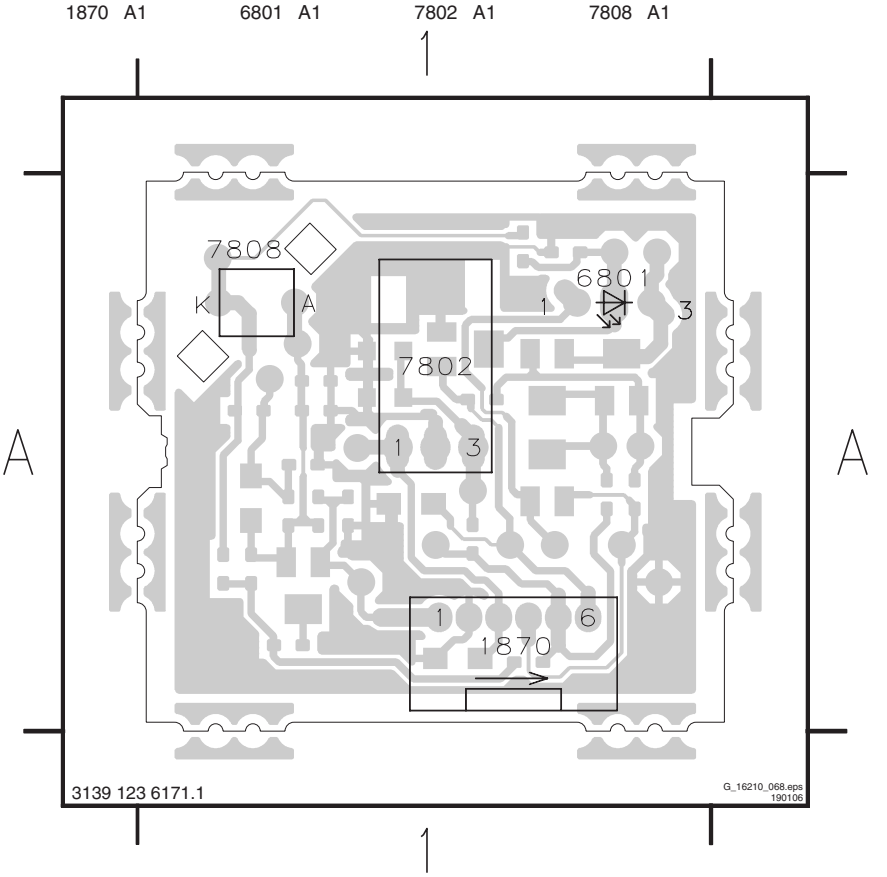


IR-LED and Light Sensor Panel (ME5FL)

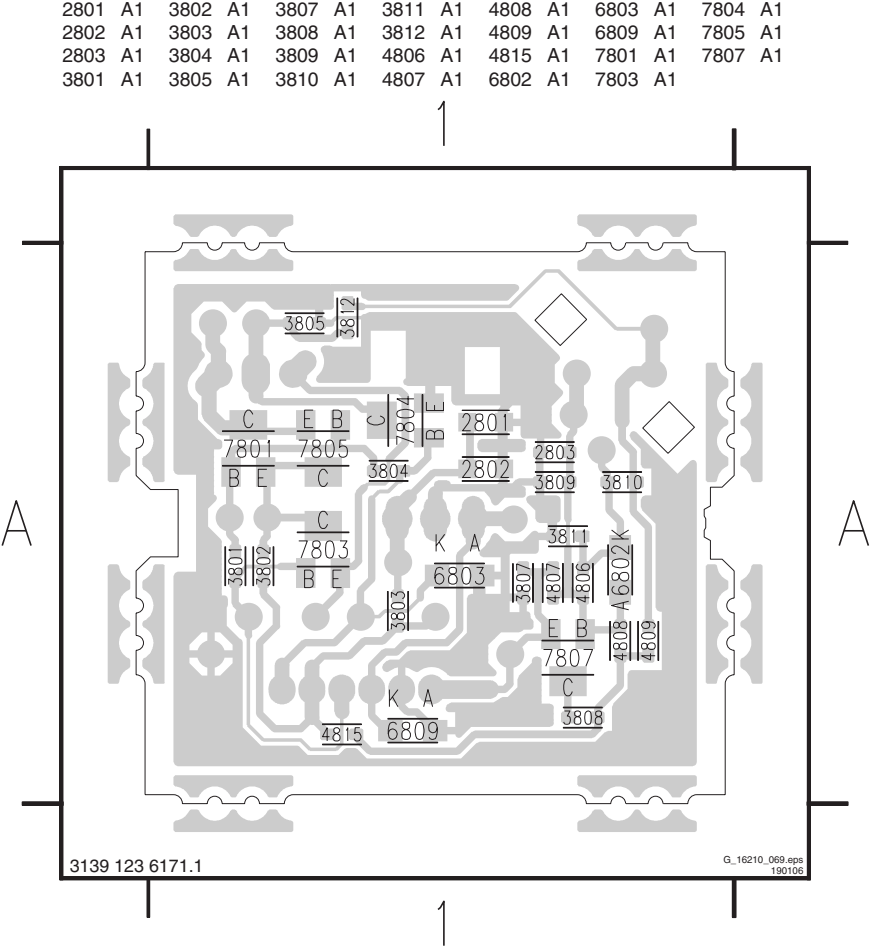
1870 B1	3802 A4	3808 E3	4806 E4	6801-2 B4	7802 C3	7808 E4	F805 C1	I804 C4	I811 E4
2801 D4	3803 C4	3809 E4	4807 E3	6802 E4	7803 B4	F801 C1	F806 B1	I805 A4	
2802 D4	3804 B3	3810 E4	4808 D3	6803 C3	7804 C4	F802 C1	I801 B3	I806 B4	
2803 E3	3805 C4	3811 E4	4809 D4	6809 D3	7805 B3	F803 B1	I802 B4	I809 E3	
3801 B3	3807 E2	3812 D4	6801-1 B4	7801 B4	7807 E3	F804 B1	I803 B3	I810 E4	



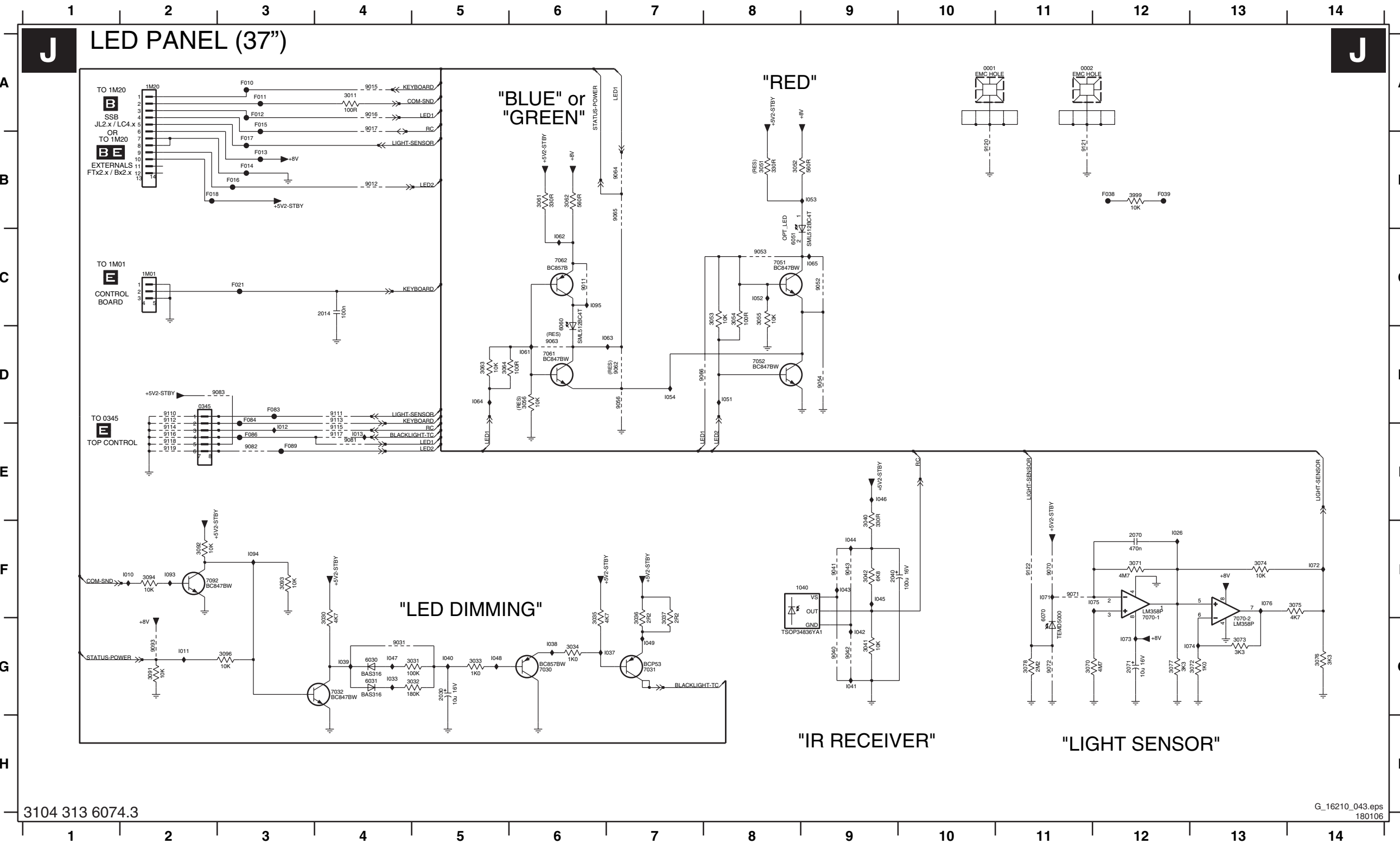
Layout IR-LED and Light Sensor Panel (ME5FL) (Top Side)



Layout IR-LED and Light Sensor Panel (ME5FL) (Bottom Side)

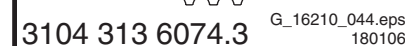


Front IR / LED Panel (37")

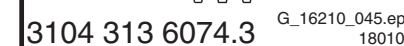


0001 A10	9119 E2
0002 A11	9120 B10
0345 D2	9121 B11
1040 F9	9122 F11
1M01 C2	F010 A3
1M20 A2	F011 A3
2014 C4	F012 A3
2030 G5	F013 B3
2040 F9	F014 B3
2070 F12	F015 A3
2071 G12	F016 B3
3011 A4	F017 B3
3030 G4	F018 B2
3031 G5	F021 C3
3032 G5	F038 B12
3033 G5	F039 B12
3034 G6	F083 D3
3035 G6	F084 D3
3036 G7	F086 E3
3037 G7	F089 E3
3040 F9	I010 F2
3041 G9	I011 G2
3042 F9	I012 E3
3051 B8	I013 E4
3052 B8	I026 F12
3053 C8	I033 G4
3054 C8	I037 G7
3055 C8	I038 G6
3056 D6	I039 G4
3061 B6	I040 G5
3062 B6	I041 G9
3063 D5	I042 G9
3064 D5	I043 F9
3070 G11	I044 F9
3071 F12	I045 F9
3072 G13	I046 E9
3073 G13	I047 G4
3074 F13	I048 G5
3075 F14	I049 G7
3076 G14	I051 D8
3077 G12	I052 C8
3078 G11	I053 B9
3091 G2	I054 D7
3092 F2	I061 D6
3093 F3	I062 C6
3094 F2	I063 D7
3096 G3	I064 D5
3999 B12	I065 C9
6030 G4	I071 F11
6031 G4	I072 F14
6051 C8	I073 G12
6060 C6	I074 G12
6070 G11	I075 F12
7030 G6	I076 F13
7031 G7	I093 F2
7032 G4	I094 F3
7051 C8	I095 C6
7052 D8	
7061 D6	
7062 C6	
7070-1 F12	
7070-2 G13	
7092 F2	
9011 C6	
9012 B4	
9015 A4	
9016 A4	
9017 A4	
9031 G4	
9040 G9	
9041 F9	
9042 G9	
9043 F9	
9052 C9	
9053 C8	
9054 D9	
9056 D7	
9062 D7	
9063 D6	
9064 B7	
9065 B7	
9066 D7	
9070 F11	
9071 F11	
9072 G11	
9081 E4	
9082 E3	
9083 D3	
9093 G2	
9110 D2	
9111 D4	
9112 D2	
9113 D4	
9114 E2	
9115 E4	
9116 E2	
9117 E4	
9118 E2	

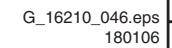
Layout Front IR / LED Panel (37") (Bottom Side)



0345	--
1M01	--
1M20	--
2014	--
2030	--
2040	--
2070	--
2071	--
3011	--
3030	--
3034	--
3035	--
3036	--
3037	--
3040	--
3041	--
3042	--
3051	--
3052	--
3053	--
3054	--
3061	--
3062	--
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3075	--
3076	--
3077	--
3078	--
3091	--
3092	--
3093	--
3094	--
3096	--
3999	--
7032	--
7051	--
7061	--
7070	--
7092	--
9012	--
9015	--
9016	--
9017	--
9040	--
9041	--
9042	--
9043	--
9052	--
9053	--
9062	--
9063	--
9064	--
9065	--
9070	--
9071	--
9072	--
9081	--
9082	--
9083	--
9093	--
9111	--
9113	--
9115	--
9117	--
9121	--
9122	--



SA1 CONNECTIONS



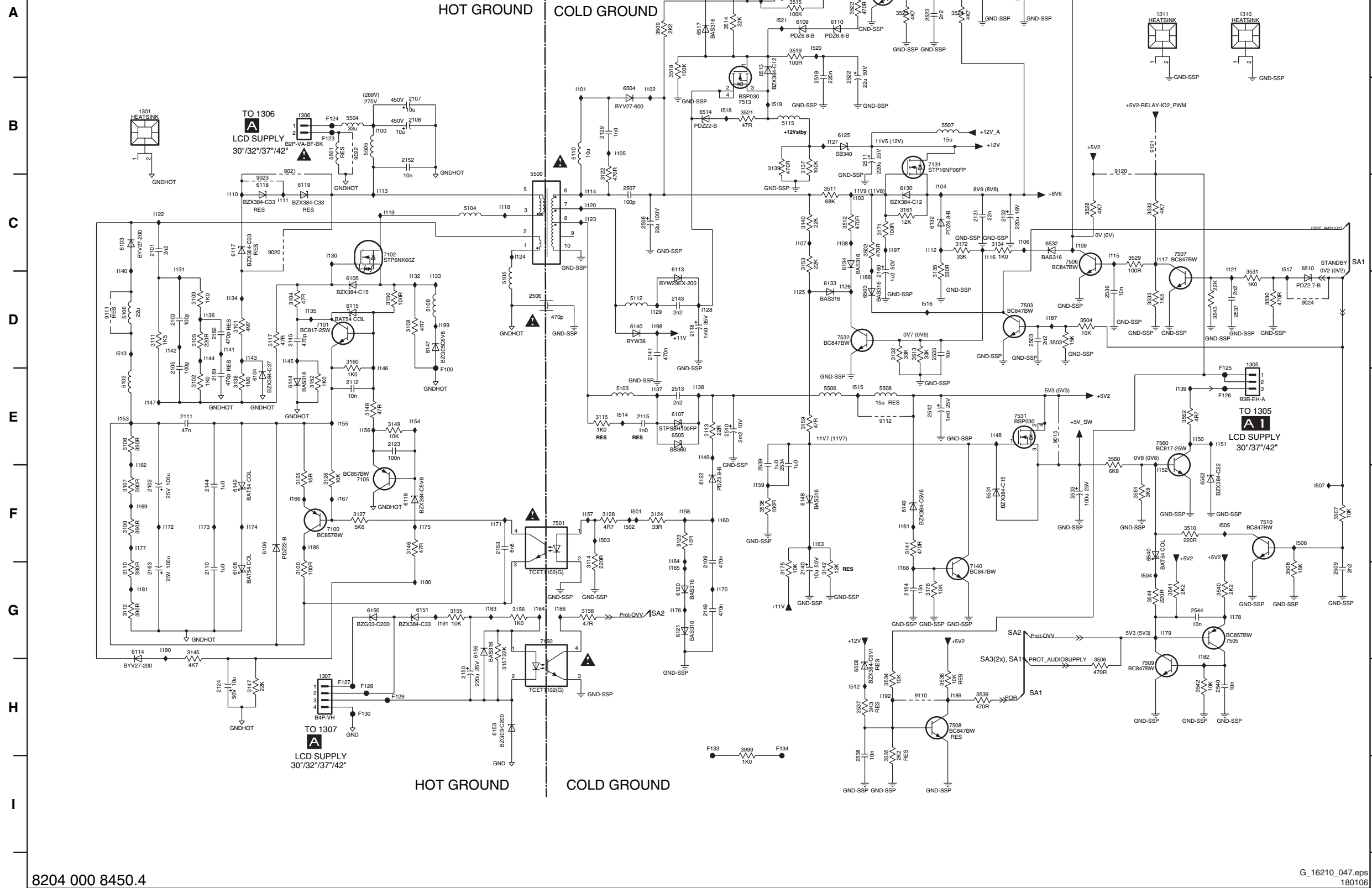
0001 F4	F140 B8
0002 F4	I524 C8
0003 F5	I525 C7
1303 B7	I550 C6
1304 C8	I551 C4
1309 E7	I552 F6
1314 E1	I553 F6
1315 E2	I554 F6
1316 B1	I555 F6
1317 B2	I556 F7
1318 B3	I557 F8
1319 B6	I558 F7
1320 B7	I559 F8
1D40 F7	I560 F7
1D42 F8	
1K49 F6	
1M03 B5	
1M10 B9	
1M46 E4	
1M49 F6	
1M63 E6	
2517 C7	
3190 E7	
3191 E7	
3192 E7	
3520 C8	
3525 C7	
3526 C7	
3527 D7	
5018 D6	
5019 D6	
6515 B8	
6516 C7	
7515 C8	
9001 F3	
9002 C3	
9003 C3	
9004 C6	
9005 D6	
9006 D7	
9007 D7	
9008 B3	
9009 B3	
9010 D6	
9011 E6	
9012 C5	
9013 C5	
9014 C6	
9016 B8	
9018 C9	
9113 C4	
F101 C9	
F103 B7	
F104 C3	
F105 C3	
F108 C9	
F109 E3	
F110 B8	
F111 B4	
F112 E7	
F113 B5	
F114 E3	
F115 C4	
F117 F3	
F119 D6	
F120 D6	
F121 C4	
F122 C5	
F131 E3	
F132 E3	
F135 E3	
F136 E3	
F137 B3	
F138 B3	
F139 C4	

Standby & Audio Panel (37") : Standby

SA2

STANDBY

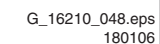
SA2



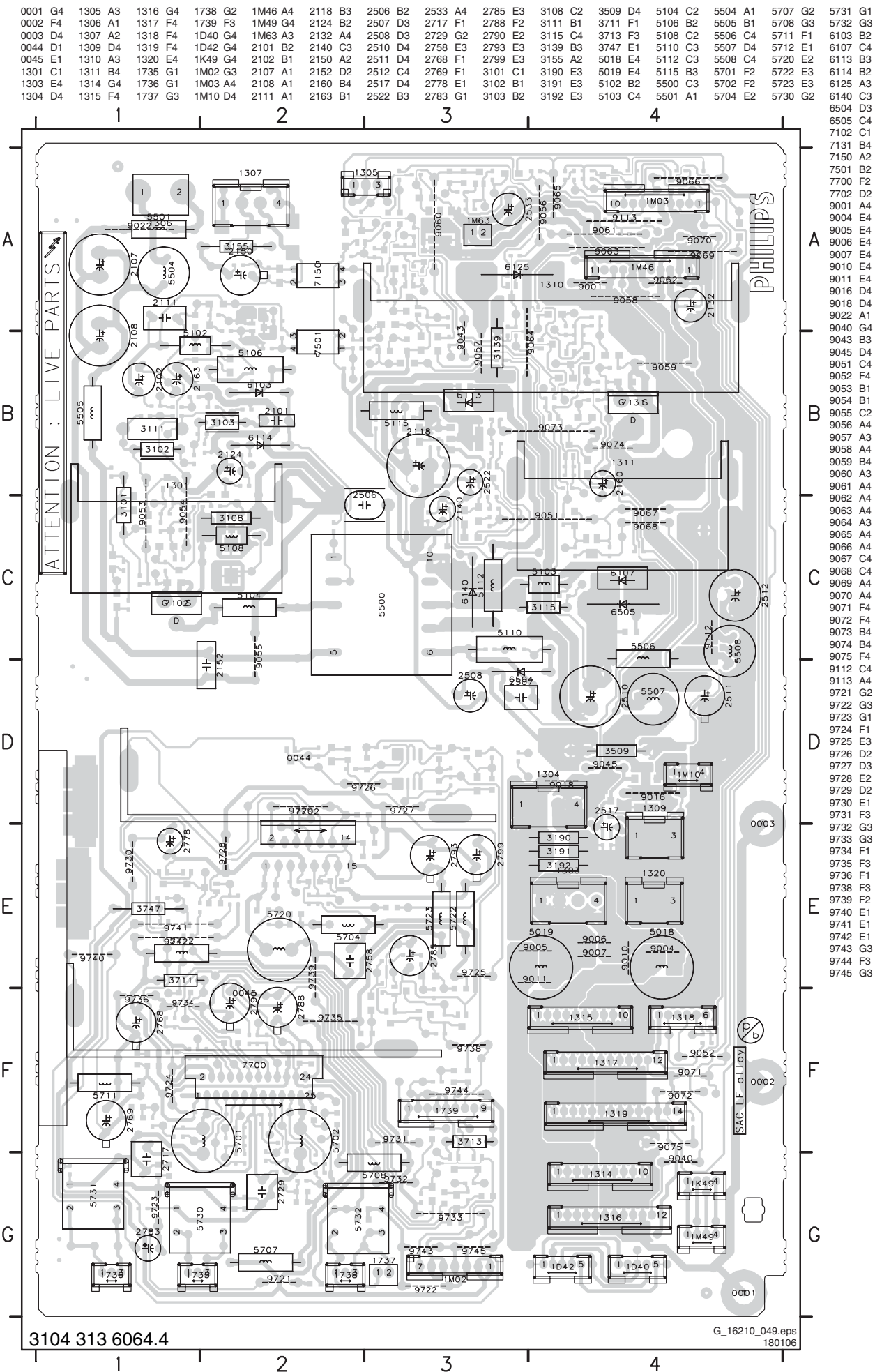
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180106

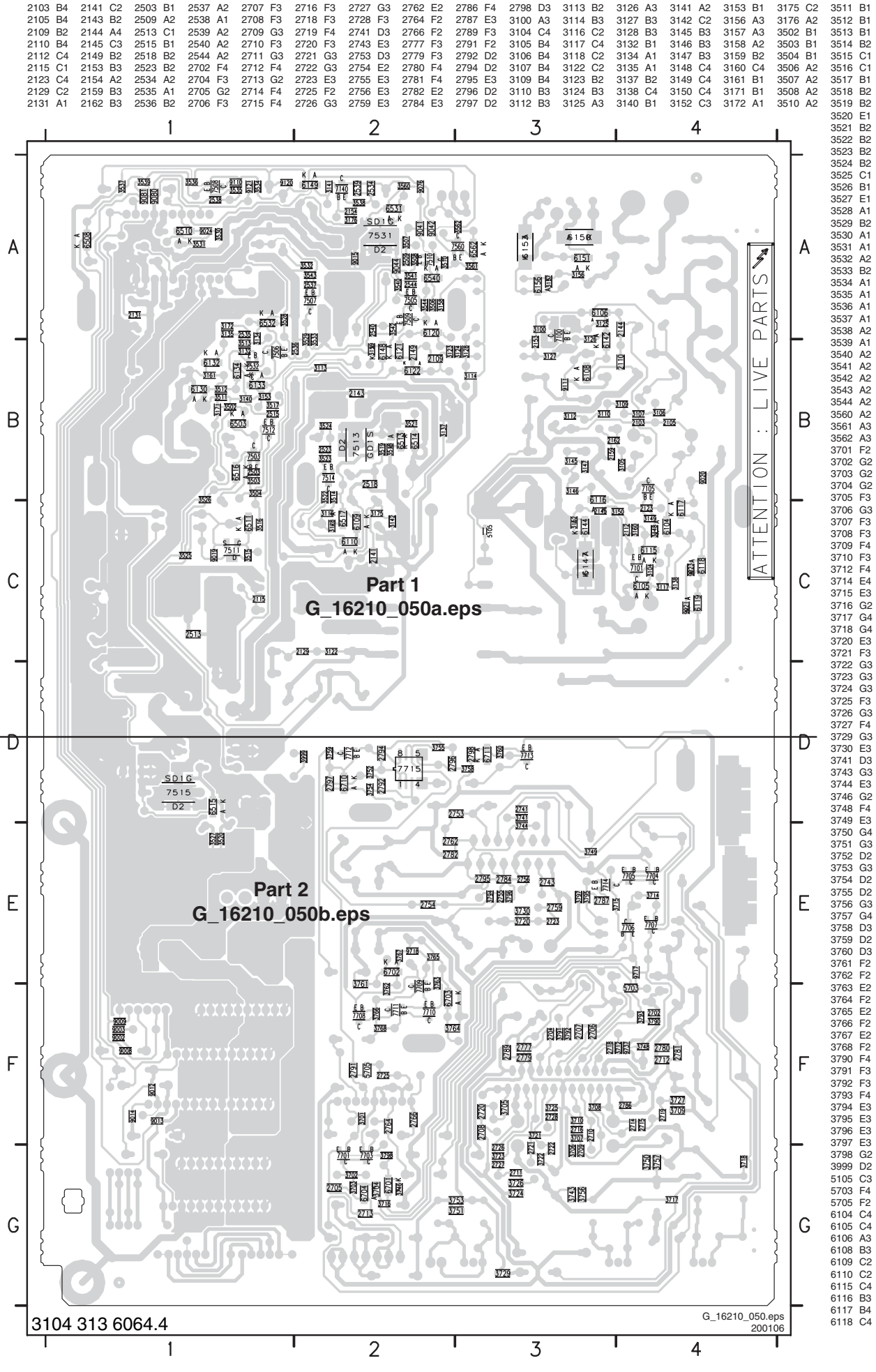
0044 D14	2705 A5	2715 F4	2726 E2	2758 G9	2780 E5	2790 E2	3701 E6	3711 E4	3722 C1	3744 G11	3755 B10	3765 C12	3796 E11	5711 E6	6703 C12	7706 C6	7715-2 C11	F720 G8	F743 B9	I703 B6	I713 B3	I723 B9	I733 C10	I743 C12	I753 F4	I763 C6	I773 G9	I783 B2	I794 B12
0045 B1	2706 B4	2716 F5	2727 E2	2759 G8	2781 E5	2791 C7	3702 B6	3712 E3	3723 C1	3746 C6	3756 F3	3766 C14	3797 C5	5712 E4	6704 B6	7707 C5	7716-2 B11	F721 G2	F744 B9	I704 A6	I714 C8	I724 E2	I734 C12	I744 E6	I754 E2	I764 D3	I774 F9	I784 F4	I795 F6
1735 F2	2707 G4	2728 B3	2762 E13	2782 D12	2792 C8	3703 A6	3713 D7	3724 F1	3737 C6	3757 G3	3767 B12	3798 D6	5720 F9	6710 D8	7708 C13	7718 B13	F722 F2	F745 A9	I705 D6	I715 C7	I725 E1	I735 D8	I745 B4	I755 F4	I765 D13	I775 F7	I785 B4	I796 C12	
1736 G2	2708 G4	2718 E3	2729 F3	2762 B12	2783 D13	3704 B6	3714 C6	3725 B4	3748 C5	3758 C10	3768 B13	3791 F4	5722 D3	6711 E8	7709 C13	F708 F2	F731 G8	F747 G5	I706 D5	I716 C3	I726 C2	I736 E8	I746 E13	I756 C1	I766 G9	I776 F4	I786 B4	I797 C12	
1737 B1	2709 B6	2719 A4	2730 D13	2763 A4	2784 D13	3705 B6	3715 D7	3726 F5	3749 B4	3759 A4	3769 B4	3792 F5	5723 F5	6712 E7	7710 F7	F709 F2	F732 G8	F748 B6	I707 D6	I717 C7	I727 E3	I737 D8	I747 B7	I757 F4	I767 D13	I777 F7	I787 B4	I798 C12	
1738 F7	2710 D6	2720 F4	2743 F13	2768 E5	2785 B13	3706 E6	3716 B6	3727 F5	3750 G3	3760 E8	3771 C2	3781 D5	5730 F2	6713 B1	7711 B13	F711 A2	F737 G6	F749 G6	I708 F11	I718 B5	I728 C9	I738 C6	I748 F4	I758 D12	I768 G3	I778 E2	I788 C7	I799 E3	
1739 F5	2711 E2	2721 C1	2753 E13	2769 E5	2786 B4	3707 D6	3717 F3	3728 G9	3751 G8	3761 B12	3772 B3	3782 G3	5731 G2	6714 D2	7712 D9	F712 A2	F738 F2	F751 F6	I709 C3	I719 F3	I729 C5	I739 B6	I749 E4	I759 F12	I769 G3	I779 E2	I789 F3	I790 F3	
1740 A9	2712 E5	2722 D1	2754 D11	2777 D1	2787 C5	3708 F6	3718 G4	3729 F7	3752 B8	3762 B12	3773 B5	3783 E8	5732 G8	6715 C7	7713 C2	F713 C2	F739 G2	I700 E6	I710 F5	I720 C8	I730 F7	I740 D9	I750 B12	I760 C5	I770 G2	I780 D13	I790 E3	I791 B12	
2702 B5	2713 B7	2723 F8	2745 B12	2768 E8	2789 E8	3709 B6	3719 D12	3730 F11	3741 E8	3751 B12	3761 F5	3772 F11	5733 F8	6716 C11	7714 B11	F714 C2	F740 F8	I701 E8	I711 F3	I721 C8	I731 F7	I741 D11	I751 B12	I761 C5	I771 G2	I781 B4	I791 E3	I792 B12	
2704 C2	2714 C3	2725 F6	2756 G12	2777 D2	2789 D2	3709 D13	3710 B3	3721 C1	3743 F3	3754 C8	3764 C12	3775 C5	5705 E1	6702 B12	7715-1 C9	F715 C2	F742 B9	I702 A6	I712 A5	I722 C8	I732 C6	I742 C12	I752 B13	I762 D11	I772 F8	I782 C13	I793 B13	I794 B12	



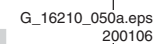
Layout Standby & Audio Panel (37") (Top Side)



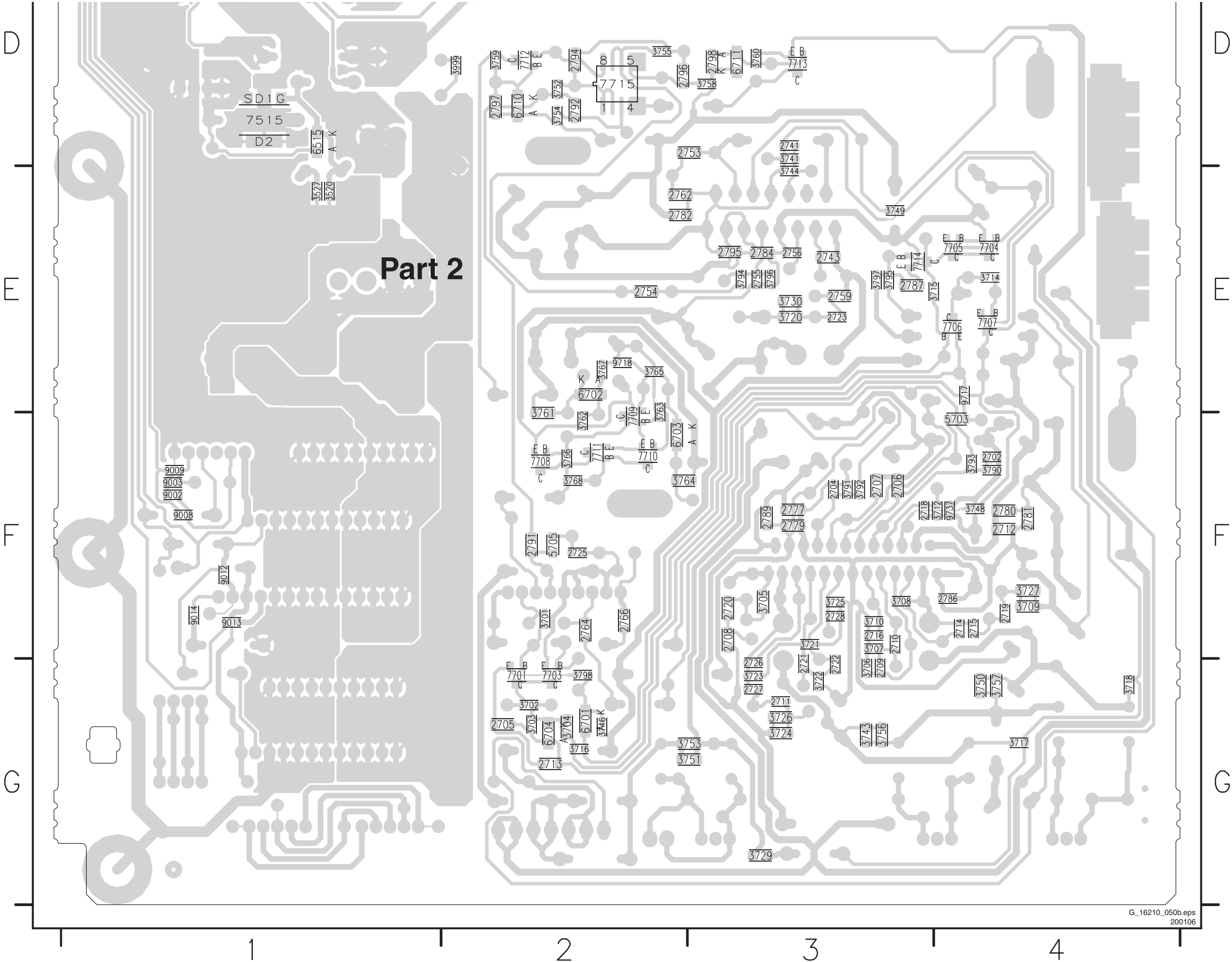
Layout Standby & Audio Panel (37") (Overview Bottom Side)



4



Layout Standby & Audio Panel (37") (Part 2 Bottom Side)



OTC Flash (For 1000pg TXT) (37")

OTC-FLASH (FOR 1000pg TXT)

A

B

C

D

E

F

G

H

I

A

B

C

D

E

F

G

H

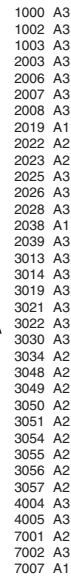
I

3104 313 6064.4

G_16210_051.eps
180106

1000 B2 3056-1 H9
1001 E4 3056-2 G9
1002 D2 3056-3 G9
1003 F2 3056-4 G9
2001 E5 3057-1 G9
2002 E5 3057-2 G9
2003 E5 3057-3 G9
2004 E5 3057-4 G9
2005 E5 3062 G11
2006 E5 4001 C4
2007 E5 4002 G12
2008 E5 4003 G12
2010 I4 4004 G5
2011 I4 4005 H5
2012 I4 5001 A3
2013 D9 6001 G2
2019 A13 6002 G3
2020 C4 7001 D6
2021 B5 7002 G4
2022 D5 7003 B4
2023 D5 7004 E12
2024 D5 7006 E12
2025 D5 7007 A13
2026 D5 F000 D10
2027 D5 F001 B9
2028 D5 F002 B2
2029 B3 F003 B2
2031 E13 F004 B2
2033 D11 F005 B2
2034 D11 F006 B2
2035 D11 F007 B2
2036 D12 F008 B2
2037 D12 F009 C2
2038 A13 F010 C2
2039 G4 F011 C2
2042 F5 F012 C2
2043 E5 F013 H4
2044 F5 F014 G5
2045 F5 F015 H5
2046 H9 F016 H5
2047-1 H9 F017 I6
2048 I6 F018 I6
2049-3 H9 F019 I6
2050-4 H9 F020 F12
2051 I5 F021 G12
2052 I5 F022 G12
2053 I5 F023 G12
2054-4 D8 F024 G14
2055 F2 F025 F2
2056 F5 F026 F2
2057 F5 F027 F2
2058-1 H5 F028 H7
2059 F6 F029 F6
2060 H5 F030 H5
2061-4 D9 I001 F12
2062 G5 I002 F12
2063 G5 I003 F12
2064 F5 I004 F12
2065 F5 I005 F12
2066 F5 I006 F12
2067 F5 I007 F12
2068 G5 I008 E12
2069 C4 I009 F12
2070 E4 I010 F12
2071 E4 I013 E14
2072 G11 I016 F12
2073 F5 I017 F12
2074 F5 I018 E12
2075 F5 I019 E12
2076 F2 I020 E12
2077 G11 I021 E12
2078 G5 I022 E12
2079 F11 I023 E12
2080-1 D9 I024 E12
2081-2 D9 I025 E12
2082-3 D9 I026 G12
2083-4 D9 I027 G13
2084-1 E9 I028 G12
2085-2 E9 I029 E14
2086-3 E9 I030 F14
2087-4 E9 I031 E14
2088-1 E9 I032 F14
2089-2 F9 I033 F14
2090-3 E9 I034 F14
2091-4 F9 I035 F14
2092-1 E9 I036 F14
2093-2 F9 I037 E13
2094-3 E9 I038 F14
2095-4 F9 I039 F14
2096-1 E9 I040 F14
2097-2 F9 I041 F14
2098-3 E9 I042 F14
2099-4 F9 I043 F14
2100-1 E9 I044 F14
2101-2 F9 I045 F14
2102-3 E9 I046 G13
2103-4 F9 I048 F12
2104-1 H9
2105-2 G9
2106-3 G9
2107-4 G9
2108-1 H9
2109-2 G9
2110-3 G9
2111-4 G9
2112-1 H9
2113-2 G9
2114-3 G9
2115-4 G9

Personal Notes:



2001 A1	2005 A1	2013 A1	2027 A2	2034 A3	3002 A1	3006 A2	3010 A1	3016 A1	3023 A2	3027 A1	3052 A2	4002 A2	6002 A1
2001 A1	2010 A2	2020 A1	2029 A1	2035 A3	3003 A1	3007 A1	3011 A1	3017 A1	3024 A1	3029 A2	3053 A2	4003 A2	7003 A1
2002 A2	2011 A1	2021 A2	2031 A1	2036 A3	3004 A1	3008 A1	3012 A1	3018 A1	3025 A1	3031 A2	3062 A2	5001 A1	7004 A2
2004 A1	2012 A1	2024 A2	2033 A3	2037 A3	3005 A1	3009 A1	3015 A1	3020 A1	3026 A1	3035 A3	4001 A1	6001 A1	7006 A2



This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal grey lines across the entire width of the page. The lines are thin and light in color, providing a guide for writing without being distracting. There are no margins, text, or other markings on the page.

8. Alignments

Index of this chapter:

- 8.1 General Alignment Conditions
- 8.2 Hardware Alignments
- 8.3 Software Alignments

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

General: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the Cursor Up, Down, Left or Right keys of the remote control transmitter.

8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:

Mains voltage and frequency: 110-240 V / 50/60 Hz (26 and 32"), 220-240 V / 50/60 Hz (37").

Allow the set to warm up for approximately 10 minutes.

Test probe: $R_i > 10 \text{ M}\Omega$; $C_i < 2.5 \text{ pF}$.

8.2 Hardware Alignments

There are no hardware alignments foreseen for the LCD-TV.

8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM) the geometry, white tone and tuner (IF) can be aligned. To store the data: Use the RC button Menu to switch to the main menu and next, switch to 'Stand-by' mode.

8.3.1 SAM Menu

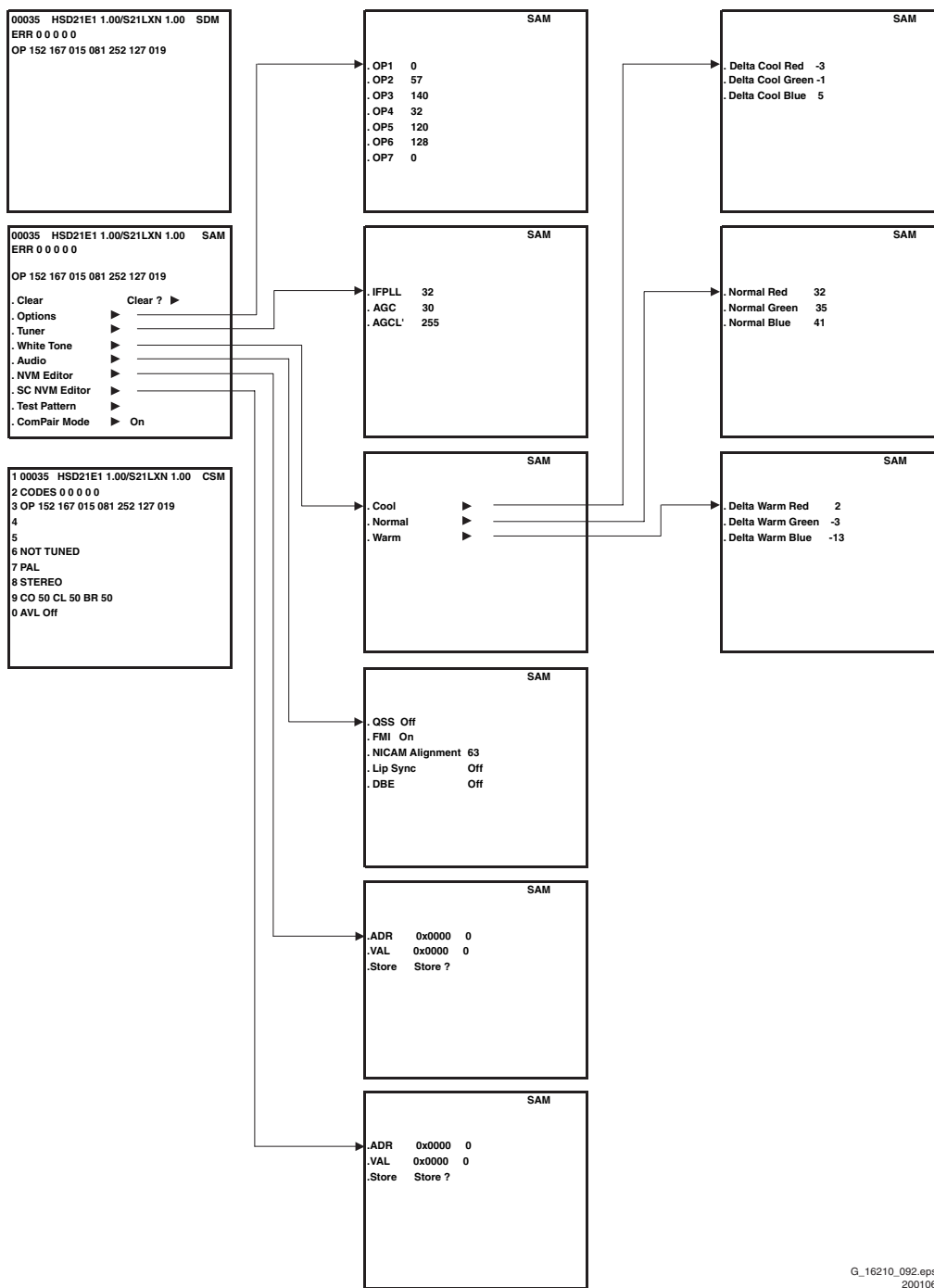
G_16210_092.eps
200106

Figure 8-1 Overview SAM menu.

8.3.2 Tuner Adjustment

AGC (RF AGC Take Over Point)

- Activate the SAM menu.
- Go to the sub-menu Tuner.
- Select the AGC sub-menu.
- Adjust the AGC value to AGC = 27.
- Adjust the AGC L' value to AGC L' = 27 (Europe only).
- Adjust the IFPLL value to IFPLL = 32 (Europe only).
- Switch the set to standby to store the data.

8.3.3 DCXO (Digital Xtal Oscillator) Alignment (for NICAM sets only)

- Input a Colour bar signal with a colour subcarrier frequency of 4.43 MHz on SCART1 or SCART2.
- Select as a signal source EXT1 or AV1.
- Go to the SAM menu and select Audio.
- Activate DCXO Alignment and wait until this process has finished (DONE).
- Check if the NICAM audio reception is OK, if not: repeat the procedure.
- Switch the set to standby to store the data.

8.3.4 ADC Gain and Grey Scale Alignment

The table below shows a number of NVM settings used for each model of TV set. Be sure to use the correct editor in the SAM menu (NVM Editor or SC NVM Editor), because the first one is used for the Hercules NVM, and the second one for the SCALER (SC) part of the TV set. For further important NVM settings, see also the other NVM tables elsewhere in this manual.

Caution:

- **Do not change the NVM settings without understanding the function of each setting, because incorrect NVM settings may seriously hamper the correct functioning of the TV set!**
- **Do not change the Scaler NVM settings, as this will hamper the DVI functionality of the TV set!**
- Always note down the existing NVM settings, before changing the settings. This will enable you to return to the original settings, if the new settings turn out to be incorrect.

Table 8-1 ADC gain and grey scale alignment

SDTV ADC Gain settings: Use the NVM Editor in SAM to set these values in the Hercules NVM		
Setting	Hercules NVM Address (decimal value)	26PF5321/10/12 32PF5321/10/12 37PF5321/10/12 26PF7321/12 32PF7321/12 37PF7321/10/12
NVM_ADC_GAIN_R	006	135
NVM_ADC_GAIN_G	007	185
NVM_ADC_GAIN_B	008	165

SDTV Greyscale settings: Use the SC NVM Editor in SAM to set these values in the Scaler NVM		
Setting	Scaler NVM Address (decimal value)	26PF5321/10/12 32PF5321/10/12 37PF5321/10/12 26PF7321/12 32PF7321/12 37PF7321/10/12
ADC_RED_OFFSET2	338	070
ADC_GRN_OFFSET2	339	070
ADC_BLU_OFFSET2	340	070
ADC_RED_GAIN	341	240
ADC_GRN_GAIN	343	240
ADC_BLU_GAIN	345	240
PC Greyscale settings		
Setting	Scaler NVM Address (decimal value)	26PF5321/10/12 32PF5321/10/12 37PF5321/10/12 26PF7321/12 32PF7321/12 37PF7321/10/12
ADC_RED_OFFSET2	325	070
ADC_GRN_OFFSET2	326	070
ADC_BLU_OFFSET2	327	070
ADC_RED_GAIN	328	150
ADC_GRN_GAIN	330	150
ADC_BLU_GAIN	332	150
HD Greyscale settings		
Setting	Scaler NVM Address (decimal value)	26PF5321/10/12 32PF5321/10/12 37PF5321/10/12 26PF7321/12 32PF7321/12 37PF7321/10/12
ADC_RED_OFFSET2	351	064
ADC_GRN_OFFSET2	352	075
ADC_BLU_OFFSET2	353	064
ADC_RED_GAIN	354	180
ADC_GRN_GAIN	356	180
ADC_BLU_GAIN	358	180

8.3.5 Panel Size Settings

The table below shows the NVM settings for panel selection, based on panel size and manufacturer. Use the SC NVM editor in the SAM menu to change the panel code at decimal address 320.

Caution:

- **Make sure to choose the right panel, because incorrect NVM settings may seriously hamper the correct functioning of the TV set!**
- Always note down the existing NVM settings, before changing the settings. This will enable you to return to the original settings, if the new settings turn out to be incorrect.

Table 8-2 Panel size settings

Option table for panel size settings		
Manufacturer	Size (inch)	Panel code (hex)
LPL	26	1A
LPL	32	0F
LPL	37	0E
Sharp	26	11
Sharp	32	10

8.3.6 Sound

- For NICAM sets: see paragraph 8.3.3.
- For other sets: No adjustments needed for sound.

8.3.7 Options

Options OP1...OP7 in the SAM menu can be used for quickly restoring 64 features or settings of the HERCULES part of the TV set to their original default factory values (8 groups of 8 features/settings each). When the decimal value of one option byte OP1...OP7 is changed (see the first table below) then a group of 8 bits, representing 8 HERCULES options or features, is changed as well (see the second table below for a detailed description of the features or settings that are changed). The second table shows which option byte (OP1...OP7) represents which group of 8 option bits. Each bit (0...7) switches a particular HERCULES feature or setting ON or OFF, depending on its value (1 or 0). It is also possible to change the features or settings mentioned in the second table directly at bit level, by means of the NVM Editor in the SAM menu. In the NVM Editor, first the correct NVM address (ADR) has to be entered, then the correct value (VAL, 1 or 0) for each bit (see second table), and finally the settings have to be stored (STORE). For quickly restoring the HERCULES part of the TV set to its original factory settings, however, it is more convenient to simply enter the default factory settings OP1...OP7 that are given in the first table below. How to do this, is described in the next paragraph.

How to Change an Option Byte

As has been explained above, an Option byte (OP) represents a number of different HERCULES options. Changing these bytes directly makes it possible to set all HERCULES options very fast. All options are controlled via seven option bytes. Select the option byte (OP1.. OP7) with the Menu Up/ Down keys, and enter the new (decimal) value. For the correct Factory Default settings, see the first table below. For more detailed information, see the second table.

Leaving the Option submenu saves the changes in the Option Byte settings. Some changes will only take effect after the set has been switched “off” and “on” with the AC power switch (cold start).

Table 8-3 Option codes OP1...OP7

Option table for quickly restoring the HERCULES to its Factory Default settings			
Model number	26PF5321/10/12 32PF5321/10/12	37PF5321/10/12	26PF7321/12 32PF7321/12 37PF7321/10/12
OP1	152	152	152
OP2	167	167	167
OP3	47	47	111
OP4	81	113	113
OP5	252	252	252
OP6	27	27	27
OP7	19	19	19
Options (can be changed only via the SAM menu)	Total decimal value for each option per model number		

How to Change Options at Bit Level

If you wish to know which features or settings of the HERCULES are changed via OP1...OP7, or if you want to change each option or feature bit by bit, use the more detailed table below.

Note: the table below contains only part of the NVM settings that can be changed. A second range of settings and features can be found in Chapter 5 of this manual, in table **NVM Default values**. The settings mentioned there can only be changed via the NVM editor. For further settings, see also the table “ADC Gain and Grey scale alignment” elsewhere in this manual.

Table 8-4 Option codes in detail, at bit level

Option byte & bit table for restoring the TV set to its original Factory Default settings via the NVM Editor in the SAM menu				
	Model number	26PF5321/10/12 32PF5321/10/12	37PF5321/10/12	26PF7321/12 32PF7321/12 37PF7321/10/12
OP1	Description of feature/option to be switched ON or OFF			
bit 7 (msb)	OP_PHILIPS_TUNER	1	1	1
bit 6	OP_FM_RADIO	0	0	0
bit 5	OP_LNA	0	0	0
bit 4	OP_ATS // for EU	1	1	1
bit 3	OP_ACI	1	1	1
bit 2	OP_UK_PNP	0	0	0
bit 1	OP_VIRGIN_MODE	0	0	0
bit 0 (lsb)	OP_CHINA	0	0	0
	Total DEC Value	152	152	152
	Total HEX Value	98	98	98
OP2				
bit 7 (msb)	OP_HDMI-2X	1	1	1
bit 6	OP_IBEX (for DVB)	0	0	0
bit 5	OP_CHANNEL_NAMING	1	1	1
bit 4	OP_LTI (Lum Transcient Improvmt)	0	0	0
bit 3	OP_TILT	0	0	0
bit 2	OP_FINE_TUNING	1	1	1
bit 1	OP_BACKLIGHT_DIMMING (for Malibu only)	1	1	1
bit 0 (lsb)	OP_HUE	1	1	1
	Total DEC Value	167	167	167
	Total HEX Value	A7	A7	A7
OP3				
bit 7 (msb)	OP_EW_FUNCTION	0	0	0
bit 6	OP_PIXEL_PLUS (for Option A)	0	0	0
bit 5	OP_SCL_RECOVERY	1	1	1
bit 4	OP_SPLITTER // temp	0	0	0
bit 3	OP_VIRTUAL_DOLBY	1	1	1
bit 2	OP_WIDE_SCREEN	1	1	1
bit 1	OP_WSSB	1	1	1
bit 0 (lsb)	OP_OP_ME5 // OP_ME5 - 5/6 local buttons implementation	1	1	1
	Total DEC Value	47	47	111
	Total HEX Value	2F	2F	6F
OP4				
bit 7 (msb)	OP_LIP_SYNC (for PDP only)	0	0	0
bit 6	OP_HD	1	1	1
bit 5	OP_1000P_TEXT	0	1	1
bit 4	OP_DELTA_VOLUME	1	1	1
bit 3	OP_TAIWAN_KOREA	0	0	0
bit 2	OP_VOLUME_LIMITER	0	0	0
bit 1	OP_STEREO_DBX	0	0	0
bit 0 (lsb)	OP_STEREO_NICAM_2CS	1	1	1
	Total DEC Value	81	113	113
	Total HEX Value	51	71	71
OP5				
bit 7 (msb)	OP_AV1	1	1	1
bit 6	OP_AV2	1	1	1
bit 5	OP_AV3	1	1	1
bit 4	OP_CVI	1	1	1
bit 3	OP_SVHS2	1	1	1
bit 2	OP_SVHS3	1	1	1
bit 1	OP_HOTEL_MODE	0	0	0
bit 0 (lsb)	OP_SIMPLE_FACTORY=OP_BTSC_AVSTEREO	0	0	0
	Total DEC Value	252	252	252
	Total HEX Value	FC	FC	FC
OP6				
bit 7 (msb)	OP_PERSONAL_ZAPPING	0	0	0
bit 6	OP_SMART_SURF	0	0	0
bit 5	OP_FMTRAP	0	0	0
bit 4	OP_COMBFILTER	1	1	1
bit 3	OP_ACTIVE_CONTROL	1	1	1
bit 2	OP_VIDEO_TEXT	0	0	0
bit 1	OP_LIGHT_SENSOR	1	1	1
bit 0 (lsb)	OP_TWIN_TEXT	1	1	1
	Total DEC Value	27	27	27
	Total HEX Value	1B	1B	1B
OP7				
bit 7 (msb)	OP_TIME_WIN1	0	0	0
bit 6	OP_DVB_USB = OP_MALAY	0	0	0
bit 5	OP_AMBILIGHT	0	0	0
bit 4	OP_COLUMBUS	1	1	1
bit 3	OP_DUMMY6	0	0	0
bit 2	OP_DUMMY7	0	0	0
bit 1	OP_WEST_EU	1	1	1
bit 0 (lsb)	OP_MULTI_STANDARD_EUR	1	1	1
	Total DEC Value	19	19	19
	Total HEX Value	13	13	13

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

- 9.1 Introduction
- 9.2 Block Diagram
- 9.3 Power Supply Unit
- 9.4 Abbreviation List
- 9.5 IC Data Sheets

9.1 Introduction

The LC4.31 chassis is a global chassis for the year 2006. It is the successor of the LC4.3 chassis and covers screen sizes of 26, 32 and 37 inch (in 16:9 ratio). It has two new stylings, called ME5FL and ME6. There are two different picture qualities available, depending on the model: Pixel Plus in the xxPF7321/10 and /12 models, and Digital Crystal Clear in the xxPF5321/10 and /12 models. The block diagram below (Figure “Block diagram”) shows the Pixel Plus architecture; the architectures of the Digital Crystal Clear models are shown in the block

diagram on the next page (Figure “Block diagram of the internal building blocks”).

The architecture consists of a TV and Scaler panel, I/O panel, Side I/O and Local Keyboard panel and Power Supply panel. The functions for video/audio processing, microprocessor (P), and CC/Teletext (TXT) decoder are all combined in one IC (TDA150xx, item 7217), the so-called third generation Ultimate One Chip (UOC-III) or “Hercules”. This chip has the following features:

- Control, small signal, mono/stereo, and extensive Audio/Video switching in one IC.
- Upgrade with digital sound & video processing.
- Alignment free IF, including SECAM-L/L1 and AM.
- FM sound 4.5/5.5/6.0/6.5, no traps/bandpass filters.
- Full multi-standard colour decoder.
- One Xtal reference for all functions (microprocessor, RCP, TXT/CC, RDS, colour decoder, and stereo sound processor).

9.2 Block Diagram

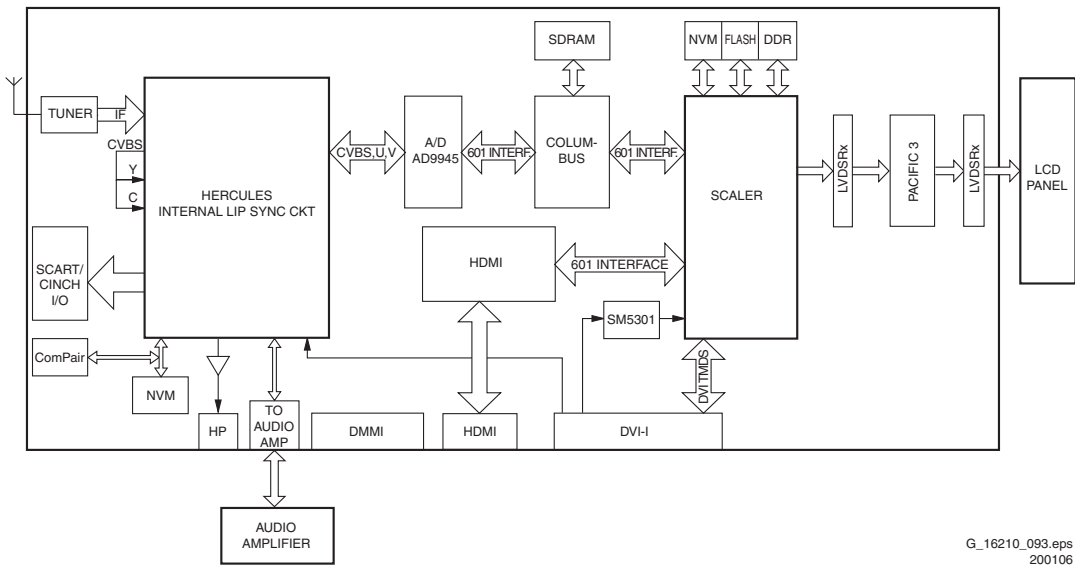


Figure 9-1 Block Diagram

The function is basically the same as in the LC4.3E AA, with the following differences:

- the model range only contains models with Digital Crystal Clear or Pixel Plus;
- Pixel Plus is performed by a new IC, called Pacific 3.

The Pacific 3 IC, which is present in Pixel Plus models, provides additional sharpening, and contrast and colour enhancements to the picture. For a general outline, see the table and the block diagrams below, in which the architectures of the two different models are given, together with their electronic building blocks.

Table 9-1 Models and picture quality

Model	Picture quality
xxPF5321/10/12	Digital Crystal Clear
xxPF7321/10/12	Pixel Plus

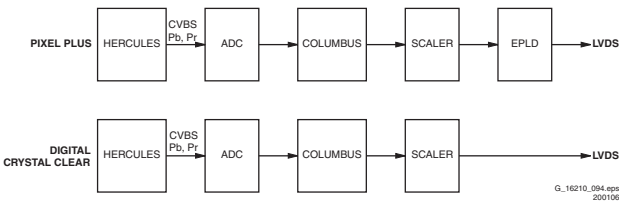


Figure 9-2 Block diagram of the internal building blocks

For more information, please refer to manual LC4.3E AA, 12NC 3122 785 15270

9.3 Power Supply Unit

9.3.1 Description

The power supply is a bought module, that consists of the following parts:

- the AC mains input with fuse;
- a separate stand-by supply;

- the mains harmonic circuit;
- the mains rectifier.

The power supply provides the following output voltages:

- 3.3V for the UOCIII, Scaler and other digital circuits;
- unregulated 12V, which is converted to regulated 5V, 8V, and 12V;
- a so-called bolt-on supply, which provides 12V for bolt-on devices (not covered in this manual).

9.3.2 States and Sub-states of the Power Supply

The power supply has three different states. Each of these states has a couple of sub-states:

1. **POWER OFF:**
 - a. **PASSIVE OFF:**
The set is switched off completely, the mains cable is disconnected. When the mains is re-connected, the set switches to the last STAND-BY status.
 - b. **ACTIVE OFF:**
The set is connected to the mains, and consuming a minimum amount of power. This sub-state is similar to NORMAL STAND-BY, but all LED indicators are off. Switch to the ON or STAND-BY mode with the POWER ON/OFF button (in the NAFTA region also with the STAND-BY KEY of the RC).
2. **STAND-BY:**
 - a. **NORMAL STAND-BY:**
Only Hercules and NVM are connected to the power (+3V3STBY), other circuits are disconnected. The LED lights red. The signal from a control port can switch the set OFF or ON.
 - b. **SEMI STAND-BY:**
Only on DVB sets. In this state the LED lights red. +3V3STBY, +12VUNREG, and +12V iBOZ remain ON for a certain time. After that time only +3V3STBY stays ON, only powering Hercules and NVM, so the set is in NORMAL STAND-BY.
3. **POWER ON:**
This is the normal operating mode. All power supply lines are available. All circuits are active. From this mode the set can switch to NORMAL STAND-BY, SEMI STAND-BY, OFF, or PROTECTION.

9.4 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2CS	2 Carrier Sound (or 2 Channel Stereo)
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control; Control signal used to tune and lock to the correct frequency
AGC	Automatic gain control (feedback) signal to the tuner. This circuit ensures a constant output amplitude regardless of the input amplitude
AM	Amplitude Modulation; A "data encoding to a carrier" method, such that the carrier amplitude is proportional to the data value
AP or A/P	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AV	External Audio Video
B-SC1-IN	Blue SCART1/EXT1 in
B-SC2-IN	Blue SCART2/EXT2 in
B-TXT	Blue TeleteXT
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz. B= VHF-band, G= UHF-band
C-FRONT	Chrominance front input
CBA	Circuit Board Assembly (also called PCB or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Colour Look-Up Table
COLUMBUS	COLOUR LUMInance Baseband Universal Subsystem. IC performing noise reduction and 2D/3D comb filtering
ComPair	Computer aided rePair. A tool for diagnosing a TV through a PC controlled interface
CSM	Customer Service Mode
CVBS	Composite Video and Blanking Signal; A single video signal that contains luminance, colour, and timing information
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DFU	Directions For Use: Owner's manual
DNR	Dynamic Noise Reduction / Digital Noise Reduction; Noise reduction feature of the set
DRAM	Dynamic RAM; dynamically refreshed RAM
DSP	Digital Signal Processing
DST	Dealer Service Tool; Special remote control designed for dealers to enter e.g. service mode (a DST-emulator is available in ComPair)
EEPROM	Electrically Erasable and Programmable Read Only Memory
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTVView)

EU	Europe		(this is a VCR norm, it is not transmitted off-air)
EXT	EXternal (source), entering the set by SCART or by cinches (jacks)	NVM	Non Volatile Memory; IC containing data such as alignment values, preset stations
FBL	Fast BLanking; DC signal accompanying RGB signals. To blank the video signal when it is returning from the right side of the screen to the left side. The video level is brought down below the black video level	O/C	Open Circuit
FM	Field Memory; A memory chip that is capable of storing one or more TV picture fields / Frequency Modulation; A technique that sends data as frequency variations of a carrier signal	ON/OFF LED	On/Off control signal for the LED
FRC	Frame Rate Converter	OSD	On Screen Display
H	H_sync to the module	PAL	Phase Alternating Line. Colour system used mainly in Western Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
HA	Horizontal Acquisition; horizontal sync pulse	PC	Personal Computer
HD	High Definition	PCB	Printed Circuit Board (or PWB)
HP	HeadPhone	PIP	Picture In Picture
I	Monochrome TV system. Sound carrier distance is 6.0 MHz. VHF- and UHF-band	PLL	Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency
I ² C	Integrated IC bus	Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
I ² S	Integrated IC Sound bus		
IC	Integrated Circuit	PWB	Printed Wiring Board (also called PCB or CBA)
IF	Intermediate Frequency	RAM	Random Access Memory
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.	RC	Remote Control transmitter
IR	Infra Red	RC5 or 6	Remote Control system 5 or 6, the signal from the remote control receiver
IRQ	Interrupt ReQuest	RGB	Red, Green, and Blue colour space; The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences	RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
LATAM	LATIn AMerica	ROM	Read Only Memory
LC04	Philips chassis name for LCD TV 2004 project	SAM	Service Alignment Mode
LCD	Liquid Crystal Display	S/C	Short Circuit
LED	Light Emitting Diode; A semiconductor diode that emits light when a current is passed through it	SCART	Syndicat des Constructeurs d'Appareils Radiorécepteurs et Téléviseurs; This is a 21-pin connector used in EU, that carries various audio, video, and control signals (it is also called Péritel connector)
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I	SCL	Serial CLock Signal on I ² C bus
LS	LoudSpeaker	SD	Standard Definition
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.	SDA	Serial Data Signal on I ² C bus
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz. M= 525 lines @ 60 Hz, N= 625 lines @ 50 Hz	SDRAM	Synchronous DRAM
MOSFET	Metal Oxide Semiconductor Field Effect Transistor	SECAM	SÉquence Couleur Avec Mémoire; Colour system mainly used in France and East Europe. The chroma is FM modulated and the R-Y and B-Y signals are transmitted line sequentially. Colour carriers= 4.406250 MHz and 4.250000 MHz
MPEG	Motion Pictures Experts Group. An ISO/IEC body that has given its name to an image compressing scheme for moving video	SIF	Sound Intermediate Frequency
MSP	Multi-standard Sound Processor: ITT sound decoder	SMPS	Switched Mode Power Supply
MUTE	MUTE Line	SND	SouND
NC	Not Connected	SOPS	Self Oscillating Power Supply
NICAM	Near Instantaneously Companded Audio Multiplexing; This is a digital sound system, mainly used in Europe	SRAM	Static RAM
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz	STBY	STandBY
		SVHS	Super Video Home System
		SW	Software or Subwoofer or Switch
		THD	Total Harmonic Distortion
		TXT	Teletext; TXT is a digital addition to analogue TV signals that contain textual and graphical information (25 rows x 40 columns). The information is transmitted within the first 25 lines during the Vertical Blank Interval (VBI)
		uP	Microprocessor
		VA	Vertical Acquisition

VL	Variable Level out: processed audio output towards external amplifier
VCR	Video Cassette Recorder
VGA	Video Graphics Array; 640x480 (4:3)
WD	Watch Dog
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XTAL	Quartz crystal
Y	Luminance signal
Y/C	Y consists of luminance signal, blanking level and sync; C consists of chroma (colour) signal
YPbPr	This is a scaled version of the YUV colour space. Y= Luminance, Pb/Pr= Colour difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV
YUV	Colour space used by the NTSC and PAL video systems. Y is the luminance and U/V are the colour difference signals

9.5 IC Data Sheets

This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.5.1 Diagram B2, Type TDA15021H (IC7217, Hercules)

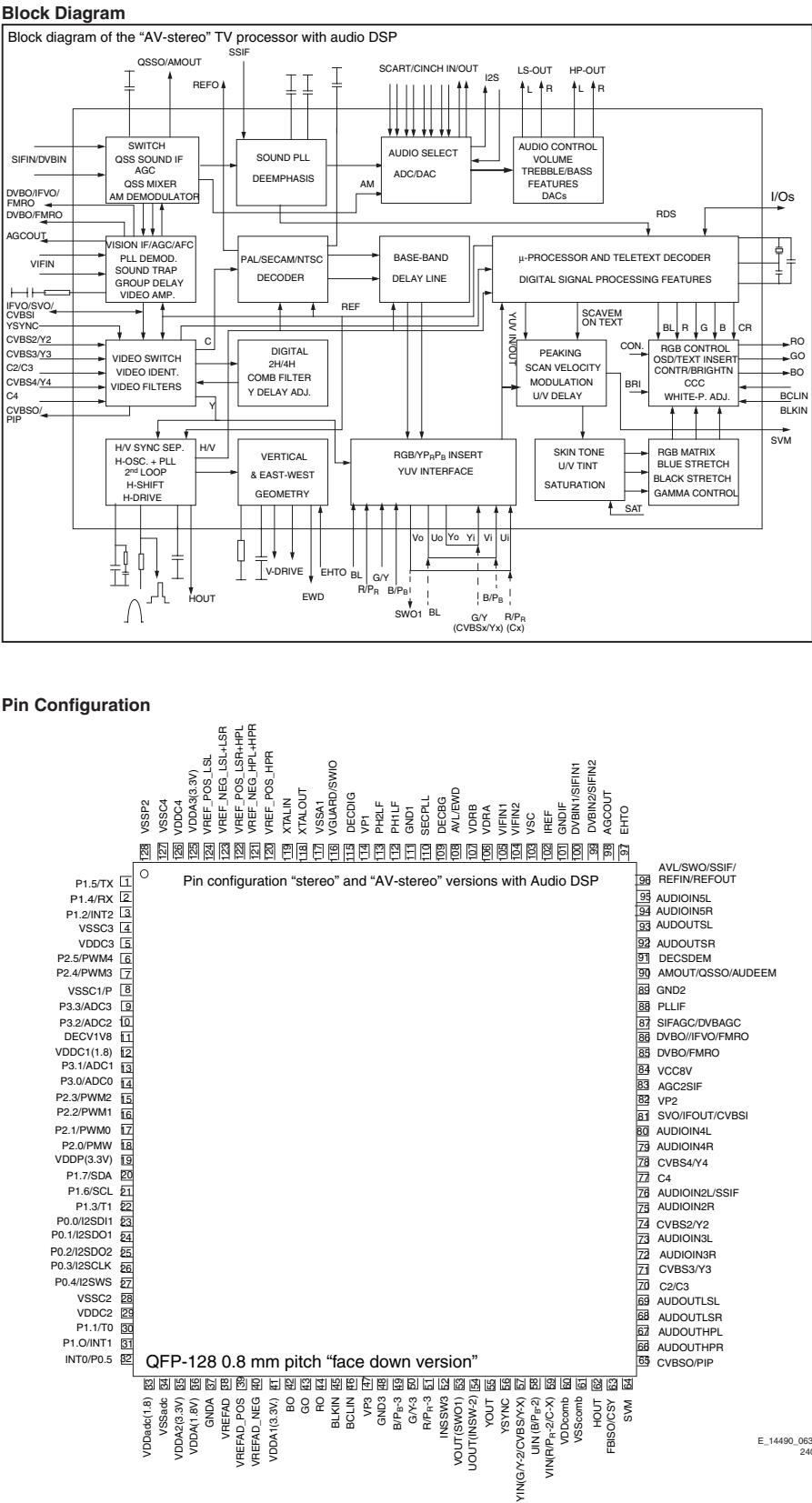


Figure 9-3 Internal block diagram and pin configuration

9.5.2 Diagram B19, Type T6TU5XB (IC7M00, Columbus)

Figure 1 Package outline (top view)

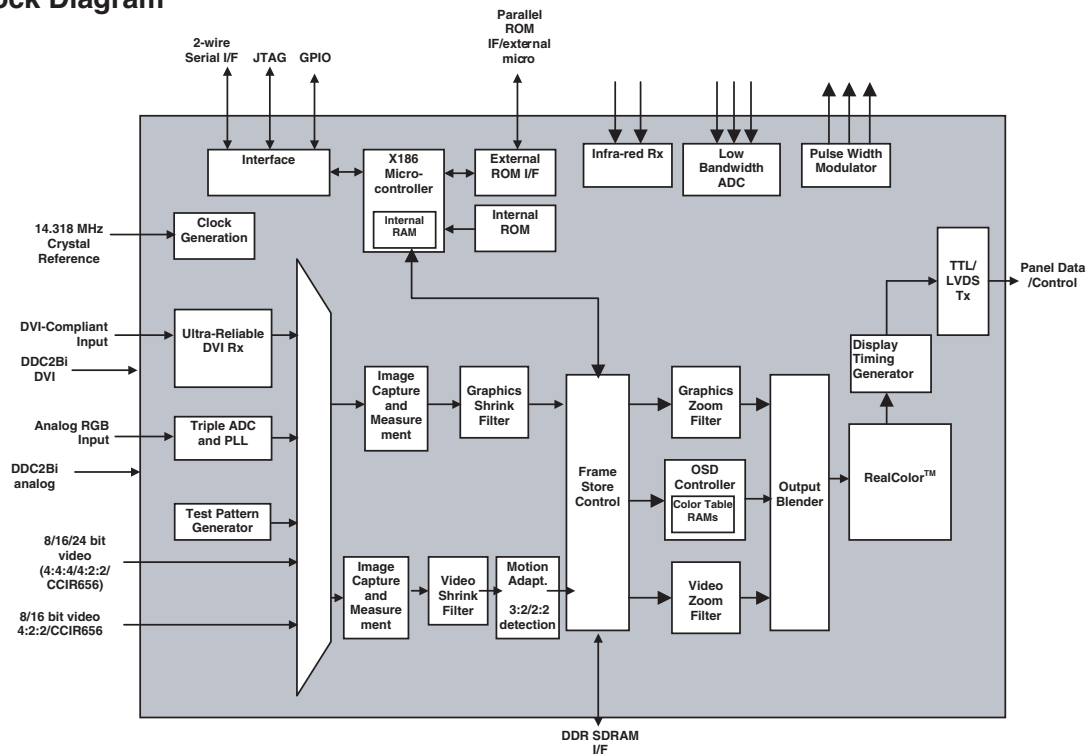
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A	WEB/ DAVB	UVA0 /Di0	UVA2 /Di2	UVA4 /Di4	UVA6 /Di6	UVA8 /Di8	SEL656	TST1	YA2	YA4	YA6	YA8	VA	HREF	SDA	A
B	YB8	VSS	UVA1 /Di1	UVA3 /Di3	UVA5 /Di5	UVA7 /Di7	YA0 /Di9	BISTEN	YA1	YA3	YA5	YA7	WEA/ DAVA	VSS	SCL	B
C	YB7	YB6	VSS	VDDS	VSS	VSS	VDDC	VDDC	VSS	VSS	VDDC	VDDS	VSS	SNDA	SNRST	C
D	YB5	YB4	VDDC	N.C.	COLUMBUS TOP-VIEW PPA Version 2.7								VSS	SNCL	TCK	D
E	YB3	YB2	VSS	VDDC									TMS	TDO	E	
F	TST2	YB1	VSS	VSS									TRST	TDI	F	
G	CLKASB	YB0 /Do9	VDDS	VDDS									A0ICC	RESET	G	
H	CLKASA	UVB8/ Do8	TST3	VDDC									CLK EXT	CLKSEL	H	
J	UVB7 /Do7	UVB6/ Do6	VSS	VSS									CLK	WEN	J	
K	UVB5 /Do5	UVB4/ Do4	VDDC	VSS									CASN	RASN	K	
L	UVB3 /Do3	UVB2 /Do2	VSS	VDDS									DQM	DQ16	L	
M	UVB1 /Do1	UVB0 /Do0	VDDS	VSS									DQ14	DQ15	M	
N	AVD	N.C.	VDDS	VSS	VSS	VDDC	VSS	VDDS	VDDC	VSS	VDDS	VSS	VSS	VDDS	DQ13	N
P	AVS	VSS	A7	A9	A2	A0	A11	DQ7	DQ6	DQ4	DQ3	DQ1	VDDS	VSS	DQ12	P
R	A4	A5	A6	A8	A3	A1	A10	DQ8	VSS	DQ5	VSS	DQ2	DQ9	DQ10	DQ11	R
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

E_14600_059.eps
200804

Figure 9-4 Pin configuration

9.5.3 Diagram B7+B8+B9, Type GM1501 (IC7401, Genesis)

Block Diagram



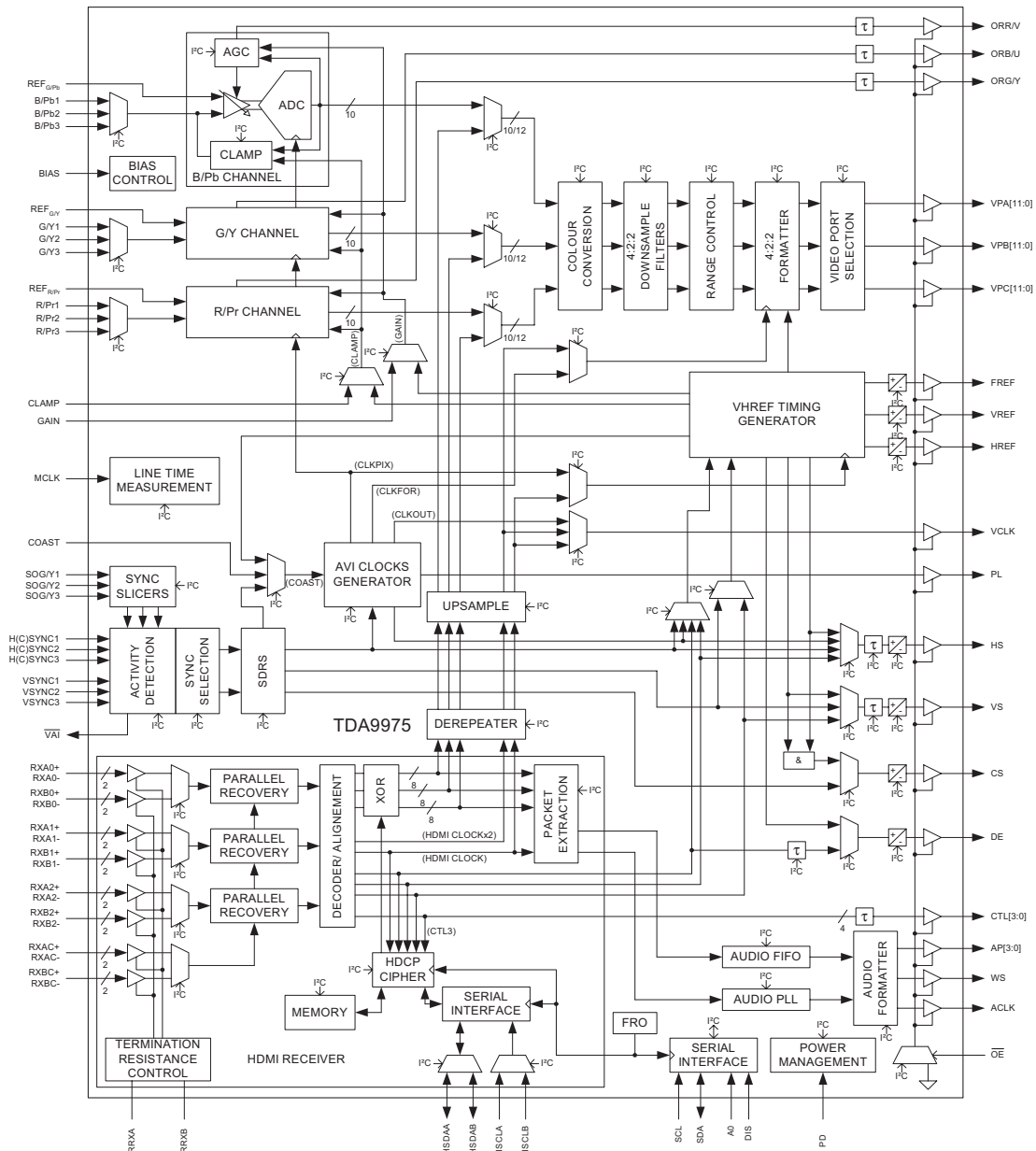
Pin Configuration

A	NC	ADC_3.3	ADC_1.8	ADC_1.8	ADC_DGND	RXC+	DVI_GND	RX0+	RX1+	RX2+	DVI_GND	LBADC_IN3	D_GND
B	BLUE-	BLUE+	ADC_3.3	ADC_DGND	DVI_GND	RXC-	DVI_GND	RX0-	RX1-	RX2-	REXT	LBADC_IN2	D_GND
C	GREEN-	GREEN+	SOG	ADC_AGND	NC	DVI_3.3	DVI_GND	DVI_3.3	DVI_3.3	DVI_3.3	DVI_3.3	LBADC_IN1	LBADC_33
D	RED-	RED+	ADC_3.3	ADC_AGND	NC	DVI_1.8	DVI_GND	DVI_1.8	DVI_1.8	DVI_1.8	DVI_GND	LBADC_RETURN	LBADC_GND
E	ADC_AGND	ADC_AGND	ADC_3.3	ADC_AGND									
F	NC	VDDD33_PLL	VSSA33_RPLL	VDDA33_RPLL									
G	VDDA33_FPLL	VSSD33_PLL	TCLK	XTAL									
H	VDDD33_SDDS	VSSA33_SDDS	VDDA33_SDDS	VSSA33_FPLL									
J	VDDD33_DDDS	VSSA33_DDDS	VDDA33_DDDS	VSSD33_SDDS									
K	RESETn	ACS_RSET_HD	NC	VSSD33_DDDS						CORE_1.8	CORE_1.8	D_GND	D_GND
L	OCM_INT2	OCM_INT1	AVSYNC	AHSYNC						D_GND	CORE_1.8	D_GND	D_GND
M	OCM_UDO	OCM_UDI	IR0	IR1						D_GND	D_GND	D_GND	D_GND
N	VGA_SDA	VGA_SCL	DVI_SDA	DVI_SCL						D_GND	D_GND	D_GND	D_GND
P	OCM_CS1n	OCM_CS2n	MSTR_SDA	MSTR_SCL						D_GND	D_GND	D_GND	D_GND
R	ROM_CSn	OCM_REn	OCM_WEn	EXTCLK						D_GND	D_GND	D_GND	D_GND
T	OCMADDR_17	OCMADDR_18	OCMADDR_19	OCM_CS0n						D_GND	CORE_1.8	D_GND	D_GND
U	OCMADDR_13	OCMADDR_14	OCMADDR_15	OCMADDR_16						CORE_1.8	CORE_1.8	D_GND	D_GND
V	OCMADDR_9	OCMADDR_10	OCMADDR_11	OCMADDR_12									
W	OCMADDR_6	OCMADDR_7	OCMADDR_8	IO_3.3									
Y	OCMADDR_3	OCMADDR_4	OCMADDR_5	IO_3.3									
AA	OCMADDR_0	OCMADDR_1	OCMADDR_2	IO_3.3									
AB	OCMDATA13	OCMDATA14	OCMDATA15	IO_3.3									
AC	OCMDATA10	OCMDATA11	OCMDATA12	IO_3.3	GPIO_G09_B2 (DEGRN0)	IO_3.3	DCLK	IO_3.3	GPIO_G07_B2 (DERED4)	IO_3.3	SHIELD[1] (DEGRN3)	LVDSB_3.3	LVDSB_GND
AD	OCMDATA9	OCMDATA8	OCMDATA3	OCMDATA0	GPIO_G09_B3 (DEGRN1)	GPIO_G08_B0 (DORED0)	DEN	GPIO_G08_B5 (DOBLU1)	GPIO_G07_B3 (DERED5)	GPIO_G07_B6 (DERED8)	SHIELD[2] (DEGRN4)	LVDSB_3.3	LVDSB_3.3
AE	OCMDATA8	OCMDATA5	OCMDATA2		GPIO_G09_B0 (DERED0)	GPIO_G08_B1 (DEBLU0)	GPIO_G08_B3 (DOGRN1)	GPIO_G07_B0 (DERED2)	GPIO_G07_B4 (DERED6)	GPIO_G07_B7 (DERED9)	SHIELD[3] (DEGRN5)	BC+ (DEGRN8)	SHIELD[4] (DEBLU2)
AF	OCMDATA7	OCMDATA4	OCMDATA1		GPIO_G09_B1 (DERED1)	GPIO_G08_B2 (DOGRN0)	GPIO_G08_B4 (DOBLU0)	GPIO_G07_B1 (DERED3)	GPIO_G07_B5 (DERED7)	SHIELD[0] (DEGRN2)	B3+ (DEGRN6)	B3- (DEGRN7)	BC- (DEGRN9)
	1	2	3	4	5	6	7	8	9	10	11	12	13

Figure 9-5 Internal block diagram and pin configuration

9.5.4 Diagram B12, Type TDA9975EL (IC7D03, HDMI Panellink), Reserved

Block Diagram



Pin Configuration

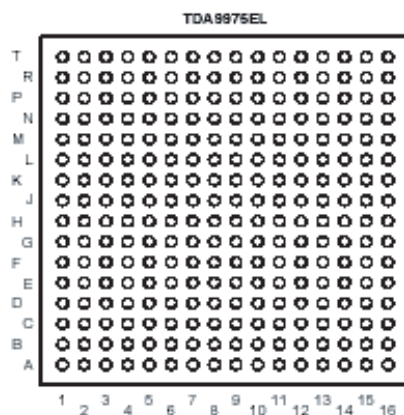
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Figure 9-6 Internal block diagram and pin configuration

10. Spare Parts List (Only for: 26PF5321/10 - /12, 32PF5321/10 - /12)

Set Level		
Various		
1099▲	9322 221 01682	LCD LC260WX2-SL01
1099▲	9322 230 03682	LCD LC320W01-SL06
1112	3139 267 24041	Assy LED/IR [J]
1114	3139 188 89031	Assy Control Board [E]
1116	3139 188 89021	Assy Side I/O [D]
1174	3139 267 26731	Assy Audio Amp [C]
1188	3122 137 23171	Power Supply Unit 32"
1188▲	3122 137 23191	Power Supply Unit 26"
8002	3104 311 08061	Cable 2p3/120/Inlet
8520	3139 131 06081	Cable Inverter
8520	3139 131 07061	Cable 12p 14p/820 280/
8P06	3139 131 05471	Cable 30p/280/30p
8P06	3139 131 06001	Cable 30p/140/30p
8870	3104 311 09151	Cable 6p/400/6p
8903	3104 311 09141	Cable 4p/560
8903	3104 311 10071	Cable 4p/560 680/
5213	2422 264 00537	Loudsp. 4Ω 15W FR
5213	2422 264 00539	Loudsp. 8Ω 15W
Software (See Product Purvey)		
0801	3139 127 07041	SW Hercules
0811	3139 127 07031	SW Genesis
0821	3139 127 07001	SW HDMI-1 DDC
0822	3139 127 06991	SW HDMI-2 DDC
Small Signal Board		
Various		
1151	2422 025 18749	Connector 3p m
1152	3139 147 19801	Tuner UV1318S/A IH -3
1154	4822 242 81436	Filter OFWK3953M
1156	2422 549 44341	Filter 38.9MHz
1177	2422 025 18749	Connector 3p m
1202	2422 543 01414	Xtal 24.576MHz
1801	2422 543 01133	Xtal 14.32MHz 20pF
1F01	2422 026 05647	Cinch 2P f
1F02	2422 033 00505	Socket HDMI 19p f
1F03	2422 033 00505	Socket HDMI 19p f
1G01	2422 025 19508	3 x Cinch/SCART
1G02	2422 025 19509	3 x Cinch/SCART
1J02	2422 025 10772	Connector 12p m
1J03	2422 025 10768	Connector 3p m
1J04	2422 025 10769	Connector 9p m
1K00	2422 025 08149	Connector 6p m
1K01	2422 025 10772	Connector 12p m
1K02	2422 025 10768	Connector 3p m
1L35	2422 543 01133	Xtal 14.32MHz 20pF
1N11	2422 549 45325	Bead 67Ω at 100MHz
1N12	2422 549 45325	Bead 67Ω at 100MHz
1N13	2422 549 45325	Bead 67Ω at 100MHz
1N14	2422 549 45325	Bead 67Ω at 100MHz
1N15	2422 549 45325	Bead 67Ω at 100MHz
1N16	2422 025 18772	Connector 30p m
8J02	3139 131 05901	Cable 12p/280/12p
8J03	3104 311 10051	Cable 3p/100/3p Wh
8J04	3104 311 09251	Cable 9p/140/9p
8K01	3139 131 05901	Cable 12p/280/12p

2B04	3198 035 71040	100nF 10% 16V 0402	2E30	3198 035 71040	100nF 10% 16V 0402	2L07	2020 552 96834	1µF 20% 6.3V 0402
2B05	3198 035 71040	100nF 10% 16V 0402	2E31	3198 035 71040	100nF 10% 16V 0402	2L08	2020 552 96834	1µF 20% 6.3V 0402
2B06	3198 035 71040	100nF 10% 16V 0402	2E32	3198 035 71040	100nF 10% 16V 0402	2L09	2020 552 96834	1µF 20% 6.3V 0402
2B07	3198 035 71040	100nF 10% 16V 0402	2E33	2020 552 00005	4.7µF 10% 6.3V 0603	2L10	2020 552 96668	560pF 10% 50V 0402
2B08	3198 035 71040	100nF 10% 16V 0402	2E34	2020 552 00005	4.7µF 10% 6.3V 0603	2L11	4822 124 23002	10µF 16V
2B09	3198 035 71040	100nF 10% 16V 0402	2E35	2020 552 00005	4.7µF 10% 6.3V 0603	2L12	2020 552 96834	1µF 20% 6.3V 0402
2B10	3198 035 71040	100nF 10% 16V 0402	2E36	3198 035 71040	100nF 10% 16V 0402	2L13	2020 552 96834	1µF 20% 6.3V 0402
2B11	3198 035 71040	100nF 10% 16V 0402	2F01	4822 124 23002	10µF 16V	2L14	2020 552 96834	1µF 20% 6.3V 0402
2B12	3198 035 71040	100nF 10% 16V 0402	2F02	2238 586 59812	100nF 20% 50V 0603	2L15	2020 552 96834	1µF 20% 6.3V 0402
2B13	3198 035 71040	100nF 10% 16V 0402	2F03	2020 552 00027	4.7µF 2% 6.3V 0603	2L16	2020 552 96637	1µF 20% 6.3V 0402
2B14	3198 035 71040	100nF 10% 16V 0402	2F04	2020 552 00027	4.7µF 2% 6.3V 0603	2L17	2020 552 96637	10µF 10% 6.3V 0805
2B15	3198 035 71040	100nF 10% 16V 0402	2F13	4822 126 14508	180pF 5% 50V 0603	2L18	2020 552 96834	1µF 20% 6.3V 0402
2B16	3198 035 71040	100nF 10% 16V 0402	2F14	4822 126 14508	180pF 5% 50V 0603	2L19	2020 552 96637	1µF 20% 6.3V 0805
2B17	3198 035 71040	100nF 10% 16V 0402	2F15	2020 552 00183	2.2µF 10% 6.3V 0603	2L20	2020 552 96834	1µF 20% 6.3V 0402
2B18	5322 124 41945	22µF 20% 35V	2F16	2020 552 00183	2.2µF 10% 6.3V 0603	2L21	4822 124 12095	100µF 20% 16V
2C00	3198 035 71040	100nF 10% 16V 0402	2G03	4822 126 14241	330pF 0603 50V	2L22	2020 552 96834	1µF 20% 6.3V 0402
2C01	4822 124 23002	10µF 16V	2G04	4822 126 14241	330pF 0603 50V	2L23	2020 552 96834	1µF 20% 6.3V 0402
2C02	3198 035 71040	100nF 10% 16V 0402	2G05	4822 124 23002	10µF 16V	2L24	2020 552 96834	1µF 20% 6.3V 0402
2C03	3198 035 71040	100nF 10% 16V 0402	2G06	4822 124 23002	10µF 16V	2L25	2020 552 96834	1µF 20% 6.3V 0402
2C04	2020 552 96628	10nF 10% 16V 0402	2G09	4822 126 14508	180pF 5% 50V 0603	2L30	4822 124 12095	100µF 20% 16V
2C05	2020 552 96628	10nF 10% 16V 0402	2G10	4822 126 14508	180pF 5% 50V 0603	2L31	3198 035 71040	100nF 10% 16V 0402
2D00	3198 035 71040	100nF 10% 16V 0402	2G11	2020 552 00183	2.2µF 10% 6.3V 0603	2L32	2020 552 96834	1µF 20% 6.3V 0402
2D01	3198 035 71040	100nF 10% 16V 0402	2G12	2020 552 00183	2.2µF 10% 6.3V 0603	2L33	3198 035 71040	100nF 10% 16V 0402
2D02	4822 124 23237	22µF 6.3V	2G16	4822 126 14508	180pF 5% 50V 0603	2L34	4822 124 12095	100µF 20% 16V
2D08	2020 552 96618	1nF 10% 50V 0402	2G17	4822 126 14508	180pF 5% 50V 0603	2L35	4822 126 14519	22pF 5% 50V 0402
2D09	2020 552 96618	1nF 10% 50V 0402	2G20	4822 126 14241	330pF 0603 50V	2L36	4822 126 14519	22pF 5% 50V 0402
2D10	2020 552 96618	1nF 10% 50V 0402	2G21	4822 126 14241	330pF 0603 50V	2L37	3198 035 71040	100nF 10% 16V 0402
2D11	2020 552 96618	1nF 10% 50V 0402	2G22	4822 124 23002	10µF 16V	2L51	3198 035 02210	220pF 5% 50V 0402
2D12	2020 552 96618	1nF 10% 50V 0402	2G23	4822 124 23002	10µF 16V	2L52	3198 035 04710	470pF 50V 0402
2D13	2020 552 96618	1nF 10% 50V 0402	2G24	2020 552 00183	2.2µF 10% 6.3V 0603	2L53	2020 552 96618	1nF 10% 50V 0402
2D14	2020 552 96618	1nF 10% 50V 0402	2G25	2020 552 00183	2.2µF 10% 6.3V 0603	2L61	3198 035 02210	220pF 5% 50V 0402
2D15	2020 552 96618	1nF 10% 50V 0402	2G28	4822 126 14508	180pF 5% 50V 0603	2L62	3198 035 04710	470pF 50V 0402
2D16	2020 552 96618	1nF 10% 50V 0402	2G43	2020 552 00027	4.7µF 2% 6.3V 0603	2L63	2020 552 96618	1nF 10% 50V 0402
2D17	2020 552 96618	1nF 10% 50V 0402	2G47	3198 035 71040	100nF 10% 16V 0402	2L71	2020 552 00005	4.7µF 10% 6.3V 0603
2D18	2020 552 96618	1nF 10% 50V 0402	2G54	2020 552 00183	2.2µF 10% 6.3V 0603	2L72	3198 035 71040	100nF 10% 16V 0402
2D21	2020 552 96618	1nF 10% 50V 0402	2G55	2020 552 00027	4.7µF 2% 6.3V 0603	2L73	2020 552 96637	10µF 10% 6.3V 0805
2D22	3198 035 71040	100nF 10% 16V 0402	2G56	2020 552 00027	4.7µF 2% 6.3V 0603	2L74	2020 552 00231	22µF 20% 16V 1210
2D23	2020 552 96618	1nF 10% 50V 0402	2G57	2020 552 00027	4.7µF 2% 6.3V 0603	2L75	2020 552 00231	22µF 20% 16V 1210
2D24	2020 552 96618	1nF 10% 50V 0402	2G58	3198 035 71040	100nF 10% 16V 0402	2L92	3198 035 74730	47nF 5% 16V 0402
2D25	3198 035 71040	100nF 10% 16V 0402	2G60	2020 552 00183	2.2µF 10% 6.3V 0603	2L93	3198 035 74730	47nF 5% 16V 0402
2D29	2020 552 96618	1nF 10% 50V 0402	2G61	3198 017 42240	220nF 16V Y5V 0603	2L94	2020 552 96618	1nF 10% 50V 0402
2D30	2020 552 96618	1nF 10% 50V 0402	2G68	4822 126 14508	180pF 5% 50V 0603	2L95	3198 035 74730	47nF 5% 16V 0402
2D31	2020 552 96618	1nF 10% 50V 0402	2G69	4822 124 23002	10µF 16V	2L96	3198 035 74730	47nF 5% 16V 0402
2D32	2020 552 96618	1nF 10% 50V 0402	2G70	2020 552 96637	10µF 10% 6.3V 0805	2L97	3198 035 74730	47nF 5% 16V 0402
2D34	2020 552 96618	1nF 10% 50V 0402	2G71	2020 552 96637	10µF 10% 6.3V 0805	2L98	3198 035 74730	47nF 5% 16V 0402
2D35	2020 552 96618	1nF 10% 50V 0402	2J02	2020 552 96618	1nF 10% 50V 0402	2M00	3198 035 71040	100nF 10% 16V 0402
2D36	2020 552 96618	1nF 10% 50V 0402	2J03	2020 552 96618	1nF 10% 50V 0402	2M01	3198 035 71040	100nF 10% 16V 0402
2D37	2020 552 96618	1nF 10% 50V 0402	2J17	2020 552 96618	1nF 10% 50V 0402	2M02	3198 035 71040	100nF 10% 16V 0402
2D38	2020 552 96618	1nF 10% 50V 0402	2J18	2238 869 15101	100pF 5% 50V 0402	2M03	3198 035 71040	100nF 10% 16V 0402
2D39	2020 552 96618	1nF 10% 50V 0402	2J19	2238 869 15101	100pF 5% 50V 0402	2M04	3198 035 71040	100nF 10% 16V 0402
2D42	4822 124 23237	22µF 6.3V	2J21	2238 869 15101	100pF 5% 50V 0402	2M05	3198 035 71040	100nF 10% 16V 0402
2D43	4822 124 23237	22µF 6.3V	2J22	2238 869 15101	100pF 5% 50V 0402	2M06	3198 035 71040	100nF 10% 16V 0402
2D44	4822 124 23237	22µF 6.3V	2J23	2238 869 15101	100pF 5% 50V 0402	2M07	3198 035 71040	100nF 10% 16V 0402
2D45	3198 035 71040	100nF 10% 16V 0402	2J26	2238 869 15101	100pF 5% 50V 0402	2M08	3198 035 71040	100nF 10% 16V 0402
2D46	4822 124 11131	47µF 6.3V	2J27	2238 869 15101	100pF 5% 50V 0402	2M09	3198 035 71040	100nF 10% 16V 0402
2D47	4822 124 23237	22µF 6.3V	2J28	2238 869 15101	100pF 5% 50V 0402	2M10	3198 035 71040	100nF 10% 16V 0402
2D48	4822 124 23237	22µF 6.3V	2J29	2238 869 15101	100pF 5% 50V 0402	2M11	3198 035 71040	100nF 10% 16V 0402
2D49	2020 552 96618	1nF 10% 50V 0402	2J30	2020 552 96618	1nF 10% 50V 0402	2M12	3198 035 71040	100nF 10% 16V 0402
2D50	4822 124 11131	47µF 6.3V	2J35	2020 552 96618	1nF 10% 50V 0402	2M13	3198 035 71040	100nF 10% 16V 0402
2D51	3198 035 71040	100nF 10% 16V 0402	2J36	2020 552 96618	1nF 10% 50V 0402	2M14	3198 035 71040	100nF 10% 16V 0402
2D52	4822 124 11131	47µF 6.3V	2K00	2020 552 96618	1nF 10% 50V 0402	2M15	3198 035 71040	100nF 10% 16V 0402
2D53	3198 035 71040	100nF 10% 16V 0402	2K01	2020 552 96618	1nF 10% 50V 0402	2M16	3198 035 71040	100nF 10% 16V 0402
2D54	4822 124 11131	47µF 6.3V	2K02	2238 869 15109	10pF 5% 50V 0402	2M17	3198 035 71040	100nF 10% 16V 0402
2D55	3198 035 71040	100nF 10% 16V 0402	2K03	2238 869 15109	10pF 5% 50V 0402	2M18	3198 035 71040	100nF 10% 16V 0402
2D56	4822 124 23002	10µF 16V	2K04	2238 869 15109	10pF 5% 50V 0402	2M19	3198 035 71040	100nF 10% 16V 0402
2D57	4822 124 23002	10µF 16V	2K05	2238 869 15109	10pF 5% 50V 0402	2M20	3198 035 71040	100nF 10% 16V 0402
2D58	2020 552 96628	10nF 10% 16V 0402	2K06	2238 869 15101	100pF 5% 50V 0402	2M21	2020 552 00183	2.2µF 10% 6.3V 0603
2D59	2020 552 96628	10nF 10% 16V 0402	2K07	2238 869 15101	100pF 5% 50V 0402	2M22	3198 035 71040	100nF 10% 16V 0402
2E00	2020 552 00005	4.7µF 10% 6.3V 0603	2K08	2020 552 00183	2.2µF 10% 6.3V 0603	2M23	5322 124 41945	22µF 20% 35V
2E01	2020 552 00005	4.7µF 10% 6.3V 0603	2K10	2238 869 15101	100pF 5% 50V 0402	2M24	3198 035 71040	100nF 10% 16V 0402
2E02	2020 552 00005	4.7µF 10% 6.3V 0603	2K11	2238 869 15101	100pF 5% 50V 0402	2M25	3198 035 71040	100nF 10% 16V 0402
2E03	3198 035 71040	100nF 10% 16V 0402	2K12	2020 552 00183	2.2µF 10% 6.3V 0603	2M26	3198 035 71040	100nF 10% 16V 0402
2E04	2020 552 00027	4.7µF 2% 6.3V 0603	2K13	2238 869 15101	100pF 5% 50V 0402	2M27	3198 035 71040	100nF 10% 16V 0402
2E05	2020 552 00027	4.7µF 2% 6.3V 0603	2K14	2238 869 15101	100pF 5% 50V 0402	2M28	3198 035 71040	100nF 10% 16V 0402
2E06	2020 552 00027	4.7µF 2% 6.3V 0603	2K15	2238 869 15101	100pF 5% 50V 0402	2M29	3198 035 71040	100nF 10% 16V 0402
2E07	4822 126 14324	33pF 5% 50V 0402	2K16	2238 869 15101	100pF 5% 50V 0402	2M30	3198 035 71040	100nF 10% 16V 0402
2E08	2020 552 00005	4.7µF 10% 6.3V 0603	2K17	2238 869 15101	100pF 5% 50V 0402	2M31	5322 124 41945	22µF 20% 35V
2E09	4822 126 14324	33pF 5% 50V 0402	2K18	2238 869 15101	100pF 5% 50V 0402	2M32	5322 124 41945	22µF 20% 35V
2E10	2020 552 00005	4.7µF 10% 6.3V 0603	2K19	2020 552 96618	1nF 10% 50V 0402	2M56	5322 124 41945	22µF 20% 35V
2E11	4822 126 14324	33pF 5% 50V 0402	2K20	2020 552 96618	1nF 10% 50V 0			

3G04	4822 051 30103	10kΩ 5% 0.062W	3L94	3198 031 03910	390Ω 1% 0402	5211	4822 157 11716	Bead 30Ω at 100MHz
3G05	4822 051 30103	10kΩ 5% 0.062W	3L95	3198 031 03390	33Ω 1% 0402	5212	4822 157 11716	Bead 30Ω at 100MHz
3G06	4822 051 30101	100Ω 5% 0.062W	3L96	3198 031 06890	68Ω 5% 0402	5213	4822 157 11716	Bead 30Ω at 100MHz
3G07	4822 051 30101	100Ω 5% 0.062W	3L97	3198 031 03390	33Ω 1% 0402	5214	2422 536 00667	1000μH 20% 7032
3G08	4822 051 30101	100Ω 5% 0.062W	3L98	3198 031 06890	68Ω 5% 0402	5216	4822 157 11716	Bead 30Ω at 100MHz
3G09	2122 118 06408	91Ω 5% 0603	3L99	3198 031 03910	390Ω 1% 0402	5218	2422 549 45333	Bead 120Ω at 100MHz
3G10	2122 118 06408	91Ω 5% 0603	3M01	2350 035 10689	4 x 68Ω 5%	5700	2422 549 45333	Bead 120Ω at 100MHz
3G11	3198 031 06820	6.8kΩ 5% 0.01W 0402	3M02	2350 035 10689	4 x 68Ω 5%	5730	2422 535 94134	10μH 20% 0805
3G12	4822 051 30759	75Ω 5% 0.062W	3M03	2350 035 10689	4 x 68Ω 5%	5733	2422 536 00707	33μH 20%
3G13	4822 051 30331	330Ω 5% 0.062W	3M04	2350 035 10689	4 x 68Ω 5%	5735	2422 536 00516	100μH 20%
3G14	4822 051 30102	1kΩ 5% 0.062W	3M06	2350 035 10229	4 x 22Ω 5% 1206	5737	2422 535 94134	10μH 20% 0805
3G15	4822 051 30102	1kΩ 5% 0.062W	3M07	2350 035 10229	4 x 22Ω 5% 1206	5738	2422 549 45333	Bead 120Ω at 100MHz
3G16	4822 051 30759	75Ω 5% 0.062W	3M08	2350 035 10229	4 x 22Ω 5% 1206	5751	2422 535 94134	10μH 20% 0805
3G17	4822 051 30101	100Ω 5% 0.062W	3M09	2350 035 10229	4 x 22Ω 5% 1206	5756	2422 549 45333	Bead 120Ω at 100MHz
3G18	4822 051 30103	10kΩ 5% 0.062W	3M11	3198 031 04720	4.7kΩ 5% 0402	5757	2422 549 45333	Bead 120Ω at 100MHz
3G19	4822 051 30103	10kΩ 5% 0.062W	3M13	3198 031 04720	4.7kΩ 5% 0402	5900	2422 549 45333	Bead 120Ω at 100MHz
3G20	4822 051 30153	15kΩ 5% 0.062W	3M14	4822 117 13545	100Ω 1% 0402	5901	2422 549 45333	Bead 120Ω at 100MHz
3G21	4822 051 30153	15kΩ 5% 0.062W	3M15	4822 117 13545	100Ω 1% 0402	5902	2422 549 45333	Bead 120Ω at 100MHz
3G22	4822 051 30151	150Ω 5% 0.062W	3M16	3198 031 04720	4.7kΩ 5% 0402	5903	2422 549 45333	Bead 120Ω at 100MHz
3G23	4822 051 30151	150Ω 5% 0.062W	3M50	4822 117 13606	10kΩ 5% 0.01W 0402	5904	2422 549 45333	Bead 120Ω at 100MHz
3G24	4822 117 12891	220kΩ 1%	3M51	4822 117 13606	10kΩ 5% 0.01W 0402	5905	2422 549 45333	Bead 120Ω at 100MHz
3G25	4822 117 12891	220kΩ 1%	3M52	4822 117 13606	10kΩ 5% 0.01W 0402	5906	2422 549 45333	Bead 120Ω at 100MHz
3G26	4822 051 30103	10kΩ 5% 0.062W	3M53	4822 117 13546	47Ω 5% 0402	5907	2422 549 45333	Bead 120Ω at 100MHz
3G27	4822 051 30103	10kΩ 5% 0.062W	3M54	4822 117 13546	47Ω 5% 0402	5908	2422 549 45333	Bead 120Ω at 100MHz
3G28	4822 051 30759	75Ω 5% 0.062W	3M55	4822 117 13546	47Ω 5% 0402	5909	2422 549 45333	Bead 120Ω at 100MHz
3G29	4822 051 30102	1kΩ 5% 0.062W	3M56	4822 117 13606	10kΩ 5% 0.01W 0402	5910	2422 549 45333	Bead 120Ω at 100MHz
3G30	4822 051 30689	68Ω 5% 0.063W 0603	3M57	4822 117 13546	47Ω 5% 0402	5911	2422 549 45333	Bead 120Ω at 100MHz
3G33	4822 051 30102	1kΩ 5% 0.062W	3M58	4822 117 13606	10kΩ 5% 0.01W 0402	5C00	2422 549 45333	Bead 120Ω at 100MHz
3G34	4822 051 30101	100Ω 5% 0.062W	3M59	4822 117 13546	47Ω 5% 0402	5D00	2422 549 42896	Bead 120Ω 100MHz
3G36	3198 031 04730	47Ω 5% 0402	3M78	4822 117 13548	1kΩ 5% 0402	5D01	2422 549 42896	Bead 120Ω 100MHz
3G37	3198 031 04730	47Ω 5% 0402	3M79	3198 031 03320	3.3kΩ 5% 0402	5D02	2422 549 42896	Bead 120Ω 100MHz
3G38	4822 051 30151	150Ω 5% 0.062W	3M87	4822 117 13605	Jumper 0402	5D03	2422 549 42896	Bead 120Ω 100MHz
3G39	4822 051 30273	27kΩ 5% 0.062W	3M89	3198 031 02290	22Ω 5% 0.1W 0402	5D04	2422 549 42896	Bead 120Ω 100MHz
3G57	3198 031 02730	27kΩ 5% 0402	3M90	3198 031 02290	22Ω 5% 0.1W 0402	5D05	2422 549 42896	Bead 120Ω 100MHz
3G58	4822 051 30689	68Ω 5% 0.063W 0603	3S00	3198 031 04730	47Ω 5% 0402	5D06	2422 549 42896	Bead 120Ω 100MHz
3G59	2122 118 06408	91Ω 5% 0603	3S03	3198 031 04730	47Ω 5% 0402	5E00	2422 549 45333	Bead 120Ω at 100MHz
3G72	4822 051 30759	75Ω 5% 0.062W	4211	4822 117 13605	Jumper 0402	5E01	2422 549 45333	Bead 120Ω at 100MHz
3G73	4822 051 30759	75Ω 5% 0.062W	4212	4822 117 13605	Jumper 0402	5G01	2422 549 45333	Bead 120Ω at 100MHz
3G74	4822 051 30759	75Ω 5% 0.062W	4218	4822 117 13605	Jumper 0402	5G02	2422 549 45333	Bead 120Ω at 100MHz
3G75	4822 051 30759	75Ω 5% 0.062W	4219	4822 117 13605	Jumper 0402	5G03	2422 549 45333	Bead 120Ω at 100MHz
3G76	4822 117 13545	100Ω 1% 0402	4440	4822 117 13605	Jumper 0402	5G06	2422 549 45333	Bead 120Ω at 100MHz
3G77	3198 031 04730	47Ω 5% 0402	4441	4822 117 13605	Jumper 0402	5G07	2422 549 42896	Bead 120Ω 100MHz
3G78	3198 031 04730	47Ω 5% 0402	4801	4822 117 13605	Jumper 0402	5G08	2422 549 42896	Bead 120Ω 100MHz
3G79	3198 031 06820	6.8kΩ 5% 0.01W 0402	4A05	4822 117 13605	Jumper 0402	5J01	2422 549 42896	Bead 120Ω 100MHz
3G96	3198 031 04730	47Ω 5% 0402	4A06	4822 117 13605	Jumper 0402	5J02	2422 549 42896	Bead 120Ω 100MHz
3G99	3198 031 04730	47Ω 5% 0402	4D03	4822 117 13605	Jumper 0402	5J03	2422 549 45333	Bead 120Ω at 100MHz
3J03	3198 031 06890	68Ω 5% 0402	4D04	4822 117 13605	Jumper 0402	5L01	2422 549 45333	Bead 120Ω at 100MHz
3J04	3198 031 06890	68Ω 5% 0402	4E10	3198 031 01090	10Ω 5% 0.01W 0402	5L11	2422 549 45333	Bead 120Ω at 100MHz
3J05	3198 031 06890	68Ω 5% 0402	4E11	3198 031 01090	10Ω 5% 0.01W 0402	5L17	2422 549 45333	Bead 120Ω at 100MHz
3K00	4822 117 13545	100Ω 1% 0402	4G04	4822 117 13605	Jumper 0402	5L19	2422 549 45333	Bead 120Ω at 100MHz
3K01	4822 117 13545	100Ω 1% 0402	4G05	4822 117 13605	Jumper 0402	5L21	2422 549 45333	Bead 120Ω at 100MHz
3K02	4822 117 13606	10kΩ 5% 0.01W 0402	4G07	4822 117 13605	Jumper 0402	5L51	4822 157 71694	0.82μH 10%
3K03	3198 031 01530	15kΩ 5% 0.01W 0402	4G08	4822 117 13605	Jumper 0402	5L52	3198 018 53380	3.3μH 10% 0603
3K05	4822 117 13606	10kΩ 5% 0.01W 0402	4G31	4822 117 13605	Jumper 0402	5L53	3198 018 56880	6.8μH 10% 0603
3K06	3198 031 01530	15kΩ 5% 0.01W 0402	4K04	4822 117 13605	Jumper 0402	5L61	4822 157 71694	0.82μH 10%
3K07	2322 705 70399	39Ω 5% 0402	4K05	4822 117 13605	Jumper 0402	5L62	3198 018 53380	3.3μH 10% 0603
3K08	3198 031 06890	68Ω 5% 0402	4L37	4822 117 13545	100Ω 1% 0402	5L63	3198 018 56880	6.8μH 10% 0603
3K09	2322 705 70399	39Ω 5% 0402	4M00	4822 117 13605	Jumper 0402	5L71	2422 549 45333	Bead 120Ω at 100MHz
3K11	3198 031 06890	68Ω 5% 0402	4M01	4822 117 13605	Jumper 0402	5M00	2422 549 45333	Bead 120Ω at 100MHz
3K12	3198 031 06890	68Ω 5% 0402	4M02	4822 117 13605	Jumper 0402	5M01	2422 549 45333	Bead 120Ω at 100MHz
3K13	3198 031 06890	68Ω 5% 0402	4M03	4822 117 13605	Jumper 0402	5M02	2422 549 45333	Bead 120Ω at 100MHz
3L01	2350 033 11229	4x 22Ω 5% Netw.	4M05	4822 117 13605	Jumper 0402	5M03	2422 549 45333	Bead 120Ω at 100MHz
3L02	2350 033 11229	4x 22Ω 5% Netw.	4M08	4822 117 13605	Jumper 0402	5M04	2422 549 45333	Bead 120Ω at 100MHz
3L05	2350 033 11229	4x 22Ω 5% Netw.	4M09	4822 117 13605	Jumper 0402	5M05	2422 549 45333	Bead 120Ω at 100MHz
3L06	2350 033 11229	4x 22Ω 5% Netw.	4M10	4822 117 13605	Jumper 0402			
3L07	3198 031 02290	22Ω 5% 0.1W 0402	4M16	4822 117 13605	Jumper 0402			
3L09	3198 021 32290	22Ω 5% 0603	4M17	4822 117 13605	Jumper 0402			
3L10	3198 021 32290	22Ω 5% 0603	4N01	4822 117 13605	Jumper 0402			
3L12	4822 117 13606	10kΩ 5% 0.01W 0402	4N02	4822 117 13605	Jumper 0402	6151	4822 130 11416	PDZ6.8B
3L18	3198 031 01510	150Ω 5% 0.01W 0402	4N03	4822 117 13605	Jumper 0402	6152	4822 130 11416	PDZ6.8B
3L19	3198 031 01510	150Ω 5% 0.01W 0402	4N04	4822 117 13605	Jumper 0402	6153	4822 130 11397	BAS316
3L38	4822 051 30222	2.2kΩ 5% 0.062W	4N05	4822 117 13605	Jumper 0402	6154	4822 130 11525	1SS356
3L39	4822 051 30222	2.2kΩ 5% 0.062W	4N06	4822 117 13605	Jumper 0402	6204	4822 130 80622	BAT54
3L49	4822 117 13548	1kΩ 5% 0402	4N07	4822 117 13605	Jumper 0402	6205	4822 130 80622	BAT54
3L53	4822 117 13597	330Ω 5% 0.01W 0402	4N08	4822 117 13605	Jumper 0402	6430	9340 548 42115	PDZ2.4B
3L54	4822 117 13543	470Ω 5% 0402	4N09	4822 117 13605	Jumper 0402	6431	9965 000 20150	1N4148WS SOD-323
3L55	4822 117 13545	100Ω 1% 0402	4N10	4822 117 13605	Jumper 0402	6601	4822 130 10838	UDZ3.3B
3L56	4822 117 13548	1kΩ 5% 0402				6733	9322 128 70685	SMSS14
3L57	4822 117 13545	100Ω 1% 0402				6734	4822 130 11416	PDZ6.8B
3L58	4822 117 13548	1kΩ 5% 0402				6735	5322 130 34337	BAV99
3L60	4822 117 13605	Jumper 0402				6736	9340 548 71115	PDZ33B
3L61	4822 117 13597	330Ω 5% 0.01W 0402	5151	3198 018 33970	0.39μH 10% 0805	6G01	4822 130 11564	UDZ3.9B
3L62	4822 117 13543	470Ω 5% 0402	5152	4822 157 71334	0.68μH 5% 1008	6G02	4822 130 11564	UDZ3.9B
3L63	4822 117 13545	100Ω 1% 0402	5153	4822 157 71334	0.68μH 5% 1008	6G03	4822 130 11564	UDZ3.9B
3L64	4822 117 13548	1kΩ 5% 0402	5201	4822 157 11716	Bead 30Ω at 100MHz	6G04	4822 130 11564	UDZ3.9B
3L65	4822 117 13545	100Ω 1% 0402	5202	4822 157 11716	Bead 30Ω at 100MHz	6G06	4822 130 11564	UDZ3.9B
3L67	4822 117 13605	Jumper 0402	5203	4822 157 11716	Bead 30Ω at 100MHz	6G07	4822 130 11564	UDZ3.9B
3L68	4822 117 13605	Jumper 0402	5204	2422 549 42896	Bead 120Ω 100MHz	6G08	4822 130 11564	UDZ3.9B
3L71	4822 117 13597	330Ω 5% 0.01W 0402	5205	4822 157 11716	Bead 30Ω at 100MHz	6G09	4822 130 11564	UDZ3.9B
3L73	4822 117 13545	100Ω 1% 0402	5206	4822 157 11716	Bead 30Ω at 100MHz			
3L75	4822 051 30153	15kΩ 5% 0.062W	5207	2422 549 42896	Bead 120Ω 100MHz			
3L76	4822 051 30153	15k						

7201	9340 550 49115	PUMH7
7202	9340 550 49115	PUMH7
7206	4822 130 60373	BC856B
7207	9322 214 45668	M24C16-WMN6P
7208	3198 010 42310	BC847BW
7209	3198 010 42310	BC847BW
7210	3198 010 42310	BC847BW
7214	9339 693 90135	BCP69-25
7215	9339 693 90135	BCP69-25
7216	9340 425 20115	BC847BS
7217		SW (see 0801)
7219	9322 164 91668	CD74HC4053M
7220	9965 000 04199	BSN20
7221	9965 000 04199	BSN20
7430	4822 130 11155	PDTC114ET
7436	9322 221 97668	SN74LVC14APW
7601	9322 183 05668	TS482ID
7602	9351 742 70118	74HC08PW
7605	9340 310 50215	PDTA143ET
7606	9340 425 20115	BC847BS
7607	3198 010 42310	BC847BW
7730	9322 202 34668	L5973D
7735	4822 130 11057	2N7002
7738	9322 163 24668	L78M08CDT
7754	9322 214 00668	SI2301BDS-E3
7755	4822 130 11155	PDTC114ET
7756	4822 130 11155	PDTC114ET
7758	9322 212 14668	SI4423DY
7801	9322 230 32671	GM1501-LF-CF
7900	9322 142 88668	LF25CDT
7901	9322 189 19668	LD1086D2T18
7B01	9322 214 42671	K4D263238F-QC50
7C00		SW (see 0811)
7C01	9322 189 01668	AT24C32AN
7C02	9322 215 39685	PST596JN
7C03	9322 199 93668	M29W400DT-55N6
7D00		SW (see 0821)
7D01		SW (see 0822)
7D02	9322 189 19668	LD1086D2T18
7D03	9352 784 83551	TDA9974AEL/8/C1
7D04	9352 668 39118	UDA1334ATS/N2
7D05	2722 171 00038	Xtal SM 13M5 15p
7E00	9322 195 23668	ADG733BRU
7E01	9322 199 80668	SM5301BS-G
7E04	9322 221 97668	SN74LVC14APW
7E05	9322 221 97668	SN74LVC14APW
7F01	3198 010 42310	BC847BW
7F02	3198 010 42310	BC847BW
7F03	4822 209 15765	74HC4052D
7G01	3198 010 42310	BC847BW
7G02	3198 010 42310	BC847BW
7G11	9322 164 91668	CD74HC4053M
7L01	9322 226 40671	P3563M-LF-80
7L02	4822 209 17398	LD1117DT33
7L51	3198 010 42310	BC847BW
7L52	3198 010 42320	BC857BW
7L61	3198 010 42310	BC847BW
7L62	3198 010 42320	BC857BW
7L71	3198 010 42310	BC847BW
7L72	9322 226 94668	SM5304AV-G
7M00	9322 204 76671	T6TU5XBG-0001
7M01	9322 206 19672	MSM56V16160F-7T3-FG
7M03	9322 170 14668	LF15ABDT

Audio Amplifier Panel [C]

Various

1001	2422 025 09406	Connector 4p m
1002	2422 025 10769	Connector 9p m
1003	2422 025 10768	Connector 3p m



2001	2020 024 00023	220μ 35V
2002	2238 586 59812	100nF 20% 50V 0603
2003	2238 586 59812	100nF 20% 50V 0603
2004	2020 024 00023	220μ 35V
2006	2020 552 94427	100pF 5% 50V
2007	2020 552 94427	100pF 5% 50V
2008	2020 552 94427	100pF 5% 50V
2009	2020 552 94427	100pF 5% 50V
2010	2238 586 59812	100nF 20% 50V 0603
2012	2020 024 00023	220μ 35V
2014	4822 126 14238	2.2nF 50V 0603
2015	4822 126 14238	2.2nF 50V 0603
2016	4822 126 14238	2.2nF 50V 0603
2017	2238 586 59812	100nF 20% 50V 0603
2018	3198 017 31530	15nF 20% 50V 0603
2019	3198 037 52280	2.2μ 50V
2020	4822 126 13883	220pF 5% 50V

2021	4822 126 13883	220pF 5% 50V
2022	4822 126 14076	220nF +80/-20% 25V
2023	4822 121 51252	470nF 5% 63V
2024	2020 012 00036	1000μ 25V
2026	3198 017 42240	220nF 16V Y5V 0603
2027	2238 586 59812	100nF 20% 50V 0603
2028	2238 586 59812	100nF 20% 50V 0603
2029	2020 024 00023	220μ 35V
2030	4822 126 14238	2.2nF 50V 0603
2031	4822 126 14238	2.2nF 50V 0603
2032	4822 126 14238	2.2nF 50V 0603
2034	2238 586 59812	100nF 20% 50V 0603
2035	4822 126 13883	220pF 5% 50V
2036	4822 126 13883	220pF 5% 50V
2037	3198 037 52280	2.2μ 50V
2038	3198 017 31530	15nF 20% 50V 0603
2039	2020 552 96656	10μF 20% 25V 1210
2040	3198 017 42240	220nF 16V Y5V 0603
2041	2020 552 96656	10μF 20% 25V 1210
2042	4822 121 51252	470nF 5% 63V
2043	2020 012 00036	1000μ 25V
2044	2238 586 59812	100nF 20% 50V 0603
2045	4822 126 14076	220nF +80/-20% 25V
2047	3198 017 41050	1μF 10V 0603
2048	2238 586 59812	100nF 20% 50V 0603
2049	2020 552 96305	4.7μF 20-80% 10V
2051	2020 552 94427	100pF 5% 50V
2052	4822 126 14238	2.2nF 50V 0603
2053	4822 126 14238	2.2nF 50V 0603
2054	4822 126 14238	2.2nF 50V 0603
2055	4822 126 14238	2.2nF 50V 0603
2060	4822 126 14238	2.2nF 50V 0603
2061	4822 126 14238	2.2nF 50V 0603
2062	3198 017 34730	47nF 16V 0603
2063	3198 017 34730	47nF 16V 0603
2064	5322 126 11579	3.3nF 10% 63V
2065	5322 126 11579	3.3nF 10% 63V



3001	5322 117 11726	10Ω 5%
3002	4822 051 30562	5.6kΩ 5% 0.063W 0603
3003	4822 051 30223	22kΩ 5% 0.062W
3004	4822 051 30332	3.3Ω 5% 0.062W
3006	4822 051 30102	1kΩ 5% 0.062W
3007	4822 117 12925	47kΩ 1% 0.063W 0603
3008	4822 051 30222	2.2kΩ 5% 0.062W
3009	4822 117 12891	220kΩ 1%
3010	4822 051 30272	2.7kΩ 5% 0.062W
3011	4822 051 30222	2.2kΩ 5% 0.062W
3012	4822 051 20109	10Ω 5% 0.1W
3013	4822 051 30123	12kΩ 5% 0.1W
3014	2322 762 60229	22Ω 5% 1005
3019	4822 051 30103	10kΩ 5% 0.062W
3020	4822 051 30332	3.3Ω 5% 0.062W
3021	4822 051 30472	4.7Ω 5% 0.062W
3022	3198 021 32290	22Ω 5% 0603
3023	4822 051 30102	1kΩ 5% 0.062W
3024	4822 117 12925	47kΩ 1% 0.063W 0603
3025	4822 051 30222	2.2kΩ 5% 0.062W
3026	4822 051 30272	2.7kΩ 5% 0.062W
3027	4822 117 12891	220kΩ 1%
3028	4822 051 30103	10kΩ 5% 0.062W
3029	4822 051 30222	2.2kΩ 5% 0.062W
3030	4822 051 20109	10Ω 5% 0.1W
3031	2322 762 60229	22Ω 5% 1005
3032	4822 051 30392	3.9Ω 5% 0.063W 0603
3033	4822 051 30123	12kΩ 5% 0.1W
3034	4822 051 30392	3.9Ω 5% 0.063W 0603
3037	4822 051 30392	3.9Ω 5% 0.063W 0603
3039	4822 051 30103	10kΩ 5% 0.062W
3040	4822 051 30103	10kΩ 5% 0.062W
3041	4822 051 30103	10kΩ 5% 0.062W
3042	4822 051 30103	10kΩ 5% 0.062W
3043	4822 051 30103	10kΩ 5% 0.062W
3046	4822 051 30102	1kΩ 5% 0.062W
3047	4822 051 30102	1kΩ 5% 0.062W



5001	2422 549 44197	Bead 220Ω at 100MHz
5002	3198 018 52280	2.2μH 10% 0603
5003	3198 018 52280	2.2μH 10% 0603
5004	3198 018 52280	2.2μH 10% 0603
5005	3198 018 52280	2.2μH 10% 0603
5006	2422 536 01034	33μH
5007	2422 536 01034	33μH



6002	4822 130 80622	BAT54
6003	4822 130 80622	BAT54



7000	9352 760 45118	TDA8931T/N1
7001	9352 760 45118	TDA8931T/N1
7004	9322 209 56685	TL431ACDBV

Side I/O Panel [D]

Various

1301	4822 267 10484	YKF51-5359
1302	2422 026 05655	Cinch 3p f RdWhYe
1303	2422 026 05059	Connector Phone
1304	2422 025 10772	Connector 12p m



2302	4822 126 11785	47pF 5% 50V 0603
2304	4822 126 11785	47pF 5% 50V 0603
2306	4822 126 14241	330pF 0603 50V
2307	4822 126 14241	330pF 0603 50V
2308	5322 126 11583	10nF 10% 50V 0603
2309	5322 126 11583	10nF 10% 50V 0603
2310▲	3198 017 41050	1μF 10V 0603



3301	4822 051 30759	75Ω 5% 0.062W
3302	4822 051 30109	10Ω 5% 0.062W
3303	4822 051 30109	10Ω 5% 0.062W
3304	4822 051 30759	75Ω 5% 0.062W
3305	4822 117 13632	100kΩ 1% 0603 0.62W
3306	4822 051 30153	15kΩ 5% 0.062W
3307	4822 051 30102	1kΩ 5% 0.062W
3308	4822 051 30153	15kΩ 5% 0.062W
3309▲	4822 051 30759	75Ω 5% 0.062W
3310▲	4822 051 30563	56kΩ 5% 0.062W
3311	4822 051 30103	10kΩ 5% 0.062W



6301	9322 129 41685	BZM55-C12
6302	9322 129 41685	BZM55-C12
6303	9322 129 41685	BZM55-C12
6304	9322 129 41685	BZM55-C12
6305	9322 129 41685	BZM55-C12
6306	9322 129 41685	BZM55-C12
6307	9322 129 41685	BZM55-C12
6308	9322 129 41685	BZM55-C12



7301▲	4822 130 60373	BC856B
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Control Board [E]

Various

1309	4822 276 13775	Switch 1p 0.1A 12V
1310	4822 276 13775	Switch 1p 0.1A 12V
1311	4822 276 13775	Switch 1p 0.1A 12V
1312	4822 276 13775	Switch 1p 0.1A 12V
1313	4822 276 13775	Switch 1p 0.1A 12V
1314	4822 276 13775	Switch 1p 0.1A 12V
1684	4822 267 10459	Connector 3p
8684	3139 131 04421	Cable 3p/340/3p



3318	4822 051 30151	150Ω 5% 0.062W
3319	4822 051 30391	390Ω 5% 0.062W
3320	3198 021 31820	1.8kΩ 5% 0.062W 0603
3321	4822 117 12968	820Ω 5% 0.62W
3322	4822 051 30008	Jumper 0603
3323	4822 051 30008	Jumper 0603
3324	4822 051 30561	560Ω 5% 0.062W



6306	4822 130 11148	UDZ4.7B
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LED & IR Panel [J]



2801	2020 552 96637	10µF 10% 6.3V 0805
2802	2020 552 96637	10µF 10% 6.3V 0805



3801	4822 051 30332	3.3Ω 5% 0.062W
3802	4822 051 30331	330Ω 5% 0.062W
3803	4822 051 30221	220Ω 5% 0.062W



6801	9322 192 35676	SPR-325MVW
6803	4822 130 11564	UDZ3.9B



7801	4822 130 60373	BC856B
7802	9322 207 16667	TSOP34836LL1B
7803	5322 130 60159	BC846B
7804	5322 130 60159	BC846B

11. Revision List

Manual xxxx xxx xxxx.0

- First release.